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Federal Water Pollution Control Administration
Charlottesville, Virginia

20 October 1969

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CLEAN WATER

....FOR THE NATION'S ESTUARIES

PROCEEDINGS OF THE
MARYLAND-DISTRICT OF COLUMBIA
PUBLIC MEETING
ANNAPOLIS, MARYLAND
OCTOBER 30, 1968

VOLUME I

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PROCEEDINGS

Of The

MARYLAND - DISTRICT OF COLUMBIA PUBLIC MEETING

- - -

NATIONAL ESTUARINE POLLUTION STUDY

FEDERAL WATER POLLUTION CONTROL ADMINISTRATION

October 30, 1968

Francis Scott Key Auditorium
Saint John's College
Annapolis, Maryland

VOLUME I

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SUPPORT PANEL:

Mr. Paul W. Reed,
District of Columbia Health Department

Mr. James B. Coulter,
Maryland State Department of Health

Mr. Roy Metzgar,
Maryland State Planning Department

Mr. Ralph F. Hammer,
Board of Natural Resources

Mr. James R. Goldsberry,
Department of Game and Inland Fish

Mr. Henry Silbermann, Chief
Division of Engineering Services
and
Mr. Albert E. Sanderson, Jr., Chief,
Division of Water Quality and Analysis
Department of Water Resources

Mr. Gary Gardner,
Federal Water Pollution Control Administration,
Charlottesville, Va.

Mr. William A. Pate,
Maryland Department of Economic Development

Dr. L. Eugene Cronin,
Natural Resources Institute,
University of Maryland

PROCEEDINGS

MR. JENSEN: Ladies and gentlemen, I would like to welcome you to this Conference on the Estuaries, State of Maryland. I would like to tell you a little bit about the background of the meeting, purpose of the meeting, and rules for it.

I am Eugene Jensen, Regional Director for Federal Water Pollution Control Administration, Middle Atlantic Region, the region that does include Chesapeake Bay, in fact, it includes the Susquehanna River Basin and extends somewhat to the south through South Carolina.

Congress, about two years ago, in an amendment to our Water Pollution Control Act, specifically the Clean Waters Restoration Act of 1966, directed that a study be made of the estuaries of the United States. Language of the Act is broad, copies of it, I believe, can be found in the lobby in a little brown brochure that describes the project.

Basically it directs the Department of the Interior through the Federal Water Pollution Control Administration to examine essentially all aspects of estuarine values and estuarine uses. The end point in the charge presented in the Act is the preparation of a report to the Congress which would include recommendations for a comprehensive national program for the preservation, study, use and development of the estuaries.

The Act directs further that these recommendations shall give appropriate consideration to the responsibilities of the Federal, State and Local governments, and it shall also consider the responsibilities of the public and the private sectors of our economy.

The Act, the way it is written, gives the direct responsibility to the Department of the Interior, and thereby to the Federal Water Pollution Control Administration, directs that the study be carried out in cooperation with -- it lists a great many people, including other Federal agencies, State, interstate agencies, universities, private individuals; in fact, it is our interpretation that Congress has told us to get the broadest possible background for the recommendations which we are charged with preparing.

To fulfill this responsibility the Federal

Water Pollution Control Administration elected to follow four general courses of action. First, consultation with the other people who are directly interested in the estuaries, that is, with other Federal agencies, State agencies, national organizations of one kind or another that are directly interested.

Some time ago, over a year ago, we asked that each of these organizations, Federal, State, national, prepare for us statements of interest on estuarine problems, opportunities, advice as to how we might proceed.

Secondly, we decided to negotiate a series of contracts to provide information on the economic and social values of the estuaries, extent to which pollution was interfering with these uses, impact of other considerations on estuaries. There is at least one of these contracts in the State of Maryland. University of Maryland Law School, for example, is undertaking a study of the various legal constraints that would apply to the use of Chesapeake Bay resources.

Third, we are preparing a sort of statistical base for the entire project. We called it an Estuarine

Survey.

Fourth, a series of public meetings to give elected officials, State, City, County, Local, District, what have you, local organizations, interested citizens, really anyone who wants to, an opportunity to talk about what they think the problems are in estuarine management, the opportunities for the future, hopefully to give us some advice on courses of action we might recommend to the Congress.

The purpose of this meeting is just exactly that, to give people other than the Federal and State agencies an opportunity to talk about the estuaries, what they think should be done with them.

The rules generally of this meeting will have to be rather informal. We have some forty people that wish to present statements. The meeting will be conducted by three of us, Paul McKee, who is the Director of the Maryland Department of Water Resources, Mr. John V. Brink, Chief of the Bureau of Public Health Engineering of the District of Columbia Department of Public Health.

Our rule will be to introduce the speakers, our panel, we may also wish to ask some questions of our own of the various speakers.

The purpose of the panel -- they are all experts who represent largely the Maryland agencies but also the District of Columbia -- will be to listen rather attentively to these papers presented, and where they feel some additional questions should be asked to clarify the statement, I am sure they will feel free to do so.

This cannot be conducted as an adversary proceeding. We cannot accept questions from the audience. If there are those in the audience who wish to make additional statements, we will be pleased to have them incorporated in the record. We ask that people who want to do this come up, use the microphone to make sure everyone can hear so we make it part of the public record.

There will be a public record. Copies will be made available to each of you who attend. Additional copies will be available if you wish to have them.

I repeat, our rules are that the speaker will present his paper, that if it is necessary to ask additional questions to clarify it, the questions will come from our panel or from the three co-Chairmen, if co-Chairmen is the right term. If there are those in the audience who wish to have additional questions answered, these should be presented in the form, really, of factual statements which can be included in the record.

I think I shall now let Paul McKee, who is, I guess, our cooperator from the State of Maryland, introduce the members of the panel. He may wish to recognize some other people in the room.

MR. McKEE: Thank you, Mr. Jensen.

First I would like to introduce to you the members of the Support Panel. Starting closest to me, I think maybe you can see them without them having to stand up, is Mr. Paul W. Reed, representing the District of Columbia Health Department.

Next to Mr. Reed is Mr. James B. Coulter, Maryland Health Department. Then comes Roy Metzgar from the Maryland Planning Department. Next to Roy is Mr. Ralph F. Hammer, from the Board of Natural Resources. Next to Mr. Hammer is Mr. James R. Goldsberry, Superintendent of Game and Inland Fish.

Next to Mr. Goldsberry is Henry Silbermann from the Department of Water Resources and Albert Sanderson from the Department of Water Resources.

At the beginning of the next table is Mr. Cary Gardner from the Federal Water Pollution Control Administration in Charlottesville. Next to Cary is Mr. William A. Pate, Maryland Department of Economic Development.

Then Dr. L. Eugene Cronin, Natural Resources Institute, University of Maryland.

We have one missing panel member; Mr. Gregory Halpin from the Maryland Port Authority is expected, though he is not at the podium at this time.

Now, I have the very pleasant duty to introduce to you our first speaker, the Chairman of the Maryland Board of Natural Resources, the Honorable J. Millard Tawes, former Governor of Maryland. Mr. Tawes will speak for the present Governor, Spiro T. Agnew.

STATEMENT OF HONORABLE J. MILLARD TAWES, ON BEHALF OF GOVERNOR SPIRO T. AGNEW:

MR. TAWES: Thank you very much, Paul McKee.

Mr. Jensen, distinguished members of the panel this morning, the other conference participants, ladies and gentlemen, I am very pleased indeed to share a few moments with you today on a subject of great importance to Marylanders, the Chesapeake Bay, and I deem it a distinct privilege to be requested to speak for Governor Spiro T. Agnew at this meeting. I have been watching with great interest the most recent Governor's Conference on the Chesapeake Bay held at Wye Institute last month when the broad spectrum of interests generated and sustained by our wonderful Bay could get together in a common purpose -- to discuss the orderly development of an estuary, the Chesapeake Bay. The fact of your attendance here speaks both well of you and for the future of the Bay. I assure you that your comments, criticisms, proposals and participation will be appreciated by Governor Agnew personally.

The results of the Governor's Conference did provide invaluable assistance to all of the citizens of Maryland and in neighboring regions who have a stake in Chesapeake Bay, and rightfully expect to share its bounties. And I might add, to the various levels of government who are responsible to this same citizenry for proper management of the Bay. I strongly recommend that this Conference become an annual or biannual affair. The response, insights and communication generated were quite impressive. Organization of a continuing series, however, is necessary if some cumulative impact and contribution is to be achieved.

The subject that we are dealing with is a resource in transition. It is one that large numbers of people look to for wealth, sustenance, transportation, recreation and spiritual rejuvenation.

A body of water like Chesapeake Bay is different things to different people as demonstrated amply by the great variety of interests represented here today. Therefore, it is not necessary to elaborate on the fact that to shippers Chesapeake Bay is a waterway for commerce; to commercial fishermen it is their source of fish and hence, their livelihood; to recreational users it is an attractive body of water; to shoreline residents it is all the pleasures, benefits and environmental amenities that belong to a land-water locale; and to citizens fitting none of the above, the Bay represents, nevertheless, an intangible plus -- in that they know that the Bay is available to them if they desire to use it.

These are but a few examples, a complete list would be truly endless and redundant here. In addition, it must be realized that all of the Bay's users have different value systems, costs and particular benefits -- making it difficult to measure them uniformly. Only then can we begin to appreciate the problems associated with understanding, defining, evaluating and resolving the uses and conflicts of a complex estuary such as the Chesapeake Bay.

In my view, the major contribution of the Governor's Conference was to define the Bay and its tributaries as part of a single system and to identify some of the major conflicts emerging over uses and management of this system. I refer to conflicts, for example, between port expansion and seafood production, industrial development and recreation, and between waste disposal and water quality. The Conference performed a major service by highlighting these conflicts, and also calling attention to the need for finding viable methods for evaluating, reconciling, and adjudicating these conflicts. There was a clear indication at that Conference that the emphasis for Bay management falls into five major and sometimes critical needs. These are: Education, Research, Planning, Coordination and Legislation.

It is my view that the Conference demonstrated a compelling need to find efficient, equitable, realistic methods for conflict resolution and effective resource management in the Chesapeake Bay. Existing agencies and institutions have a role to play, and comprehensive definition of the problem must seek only the best improved procedures to cope with emerging problems.

It is generally conceded that the technology we have or know how to acquire will be capable of dealing with the tomorrows. But what is needed more urgently are the social and political means of intelligently directing the tools man has fashioned that are changing the environment. Man must come to grips with his machines, his environment and ultimately himself.

That's why the Governor's Conference was held -- not to see what has been done, what has happened, nor to see if something can be done -- rather it is essential to determine what has to be done, how to do it, and by whom and where and when. The stated purpose of that Conference was to "lay a foundation for the orderly development of Chesapeake Bay." I suggest that the first, fundamental step essential to accomplish that task has been achieved at that Conference and again right here. And that is to develop and establish a closer relationship among all of those involved with the problems of a resource in transition, the estuary of the Chesapeake Bay.

With that accomplished, it seems to me that we should proceed immediately to the next several steps necessary to meet the objective of that Conference and also of this meeting. Therefore, I suggest that there are other fundamental actions that should be considered in dealing with the basic causes and solutions of the Bay's environmental management problems.

As brought out at the Governor's Conference, the first fundamental step essential to coping with today's, and tomorrow's, resource problems is a primary need for education, a greater public awareness and understanding of today's problems -- and not just those relating exclusively to conservation. I cannot emphasize this point enough.

The individual citizen and his community have everything to gain if the total environment is developed and managed properly. They have a great deal to lose if it isn't. The average American has been slow to understand and to realize that the wise use of all our resources is the business and will be the benefit of everyone.

I am pleased to make note of the fact that there are some among us here today who have noted this fact and also that they are initiating activities to do something about it.

Complete understanding, however, cannot be achieved without research.

Research has been, is, and will be of special value in providing answers for management problems in protecting and enhancing the uses of the Chesapeake. Special emphasis must be placed on studies to provide the basis for rational management decisions. Research should be carried out at all pertinent levels of basic science and of applied science.

Biological research is especially needed on the life history and requirements of useful species, on the causes of natural and man-induced fluctuations in abundance, on the biological effects of various modifications in the environment, and on the flow of energy into and through the various estuarine ecosystems.

Next, we must have truly comprehensive planning with regard to the future of the Bay. By comprehensive planning I am not suggesting that big government is to step in and take over the prerogatives of local governments. Rather, the kind of planning that I am speaking of is the planning for development of a region -- a region such as Chesapeake Bay and its surrounding land areas.

We must take a more deliberate and rational approach to the Bay's future, we must recognize, appreciate and react accordingly to the fact that urbanization, industrialization and countryside community and recreational developments have impacts on our Bay. If these impacts are not to be detrimental to the overall environment, then they must be planned properly, built properly and managed properly.

This requires broad comprehensive planning on a large area or regional basis -- planning for the development and conservation of all of the Bay region's resources - soil, water, fish and shellfish, waterfowl, new and expanding industries, more prosperous and stronger families, better farms -- and planning for top notch health, recreation and cultural opportunities.

The Conference further suggested for those State and local governmental agencies of our society a mechanism to supplement and coordinate them. For in addition to the comprehensive planning procedure there must be one of a continuous process providing joint action and assistance in making mutually beneficial decisions by private and public agencies and to the carrying out of plans and the coordination of programs at the local, State and Federal governmental levels.

Such activities must emphasize a closer cooperation and understanding between the governmental agencies and private enterprise responsible for the development and management of the Chesapeake Bay region's natural resources.

All the jointly planned and coordinated programs must be carried out in a manner which will provide for periodic reevaluation of the plans and actions produced, as well as for the exchange of information and advice necessary to convert the plans into continuously coordinated action programs on the private, local, regional, State and Federal levels.

Positive and decisive steps must be taken on the State, Interstate and Federal levels toward coordinating the planning and managing of the resources of Chesapeake Bay. If we unite in this effort, its attainment can become a reality, and thus insure every citizen's rightful enjoyment of the Bay in a lawful and orderly manner. This must be one of our chief responsibilities in Maryland and, indeed, in the Nation.

In talking to a number of people that actively participated in the Governor's Conference, I was impressed with the competency of the input and the meaningful gains that evolved from this conference. There were a great many strengths evident that can be used as a basis for future State and Federal legislation.

There were several presentations that contained what might be important basic tenets for this meeting today. I should like to put those a little more into focus by quoting from the speech by Congressman Rogers Morton and the one by Mr. James J. O'Donnell, Director of the State Planning Department.

"The impact on the Bay of urbanization, industrialization, community development and recreation cannot be dealt with separately, but must be measured carefully in terms of the overall environment. In short, we must come up with a plan -- a plan in which orderly development is concurrent with preservation and conservation.

"We must hang the responsibility for this plan directly on an authority which either exists or must be put into existence, and which has the capacity, as well as the prestige, to make it stick. The plan must pull no punches. It must point out 'where it's at' and 'tell it like it is'.

"Orderly development of the Bay will not have to wait for new technologies. Let us not be delayed because there is a lack of courage on our part, or the part of any agency of the government or its leadership.

"If this Conference can come forward with a course of action expressed in simple terms, with a well-articulated demand on government at all levels that has no loopholes, that has no back-door -- but presents to the people the limited alternatives of the solution -- then we will have truly laid a foundation for the orderly development of the Chesapeake Bay."

"The first order of business has to be the implementation of existing laws and capabilities as cited in the legislation already in effect. In most instances this will necessitate expansion of staff and appropriations in key areas to permit responsible agencies to proceed consistent with their assignment under the law.

"Secondly, we should work actively and agressively toward the complete passage of both the Susquehanna and Potomac Compacts.

"Thirdly, we have not previously mentioned or referred to zoning considerations which we must now accept under the law as strictly local responsibility, but in the future, here is an area in which we must all look for sounder, more exacting -- and in most instances -- less flexible zoning, which in the interest of uniformity and integrity for the Bay, must look for direction to a broader based device than simply local zoning laws.

"I would suggest that it is necessary to spell out at the State level a device in the zoning sphere which could serve as a guideline or umbrella to zoning in the Bay area, developing an overall perspective within which local zoning can spell out details. A device such as this may in some sense indicate a duplicate posture for such zoning, but it is felt that the totality of the Bay picture would dictate some uniformity and consistency with acceptance taking place at the local level.

"Fourth -- additionally, I would suggest the need for the creation, and I feel that it must be done legally rather than by executive order or on an ad hoc basis, of a group, which for want of a better name we will call "A Council of the Chesapeake," to coordinate programs, activities, and particularly research, relative to the Bay and its problems and needs and serve as a focus for a comprehensive plan.

"Fifth -- in this sense I would say there is a very great need for the passage of legislation at the Federal level to develop a screening group for all Federal programs that may relate to the Bay, to evaluate and simplify their relation one to another and to avoid duplication and overlapping, and with some mandatory provision that such a Federal group relate directly to the State-created "Council of the Chesapeake" so that maximum results can be obtained from funds and manpower available to function in Bay-related activities.

"Sixth -- without further delay, the State posture should dictate immediate consultations with Virginia at the executive level to discuss matters of mutual concern in order to establish firm and workable relationships, to stimulate the creation of parallel functions to those proposed in Maryland, and to ultimately consider a merging of the parallel functions into an inter-State Compact or similar device that would relate at least, if not exclusively, to conservation, pollution, and health, boating, zoning, and shipping and maritime interests insofar as State government is legally able to function."

This is an enormously difficult and challenging task before us. If we fail -- we are derelict in meeting our responsibilities. And certainly, the great resource complex -- Chesapeake Bay -- will further diminish from what it was in John Smith's time and even as we know the Bay today. We must embark on endeavors creating effective managerial responses to users' impacts on the Bay and alerting and generating the proper public concern. I am looking to you as participants, and to the results of this meeting, to initiate action assuring that every citizen's stake in the Bay (and those of future generations as well) is preserved an managed properly.

Now I would like to suggest that the State of Maryland should take the lead in designing and controlling the management of the estuary. As a first step in this leadership position the management agencies of the State must develop statements of policy which in turn should be submitted to the Executive Department and released as Executive Policy to govern and guide future development and management of the Chesapeake Bay.

Realistically, it is beyond reason to hope to everywhere return the Bay to its original conditions. However, the Bay still remains for us to develop and protect -- I am sincerely recommending to all of you to provide the initiative and guidance necessary to preserve, protect and develop every citizen's interest in the Chesapeake Bay.

Thank you. It has been a pleasure to join you this morning to represent Governor Agnew, and I am sure the deliberations of this Conference will mean a great deal to the future of the Chesapeake Bay area.

Congressman Morton came in. I want to say to you, I quoted from some of your remarks at Wye Institute, and I hope you don't object.

CONGRESSMAN MORTON: I am honored and flattered.

(Applause.)

MR. McKEE: Congressman Morton, would you like to make a few remarks?

CONGRESSMAN MORTON: I never turn down the opportunity.

STATEMENT OF REPRESENTATIVE ROGERS C. B. MORTON:

CONGRESSMAN MORTON: Mr. Chairman and members of the panel, it is indeed a privilege and pleasure for me to have this opportunity to present my views of estuarine management problems. I am particularly pleased to discuss problems of the Chesapeake Bay. Hopefully, from these hearings and from continued efforts by the Department of the Interior and interested citizens, as well as civic leadership, we will, in the course of time, turn our attention and direct our energy to the salvation of the Chesapeake and its tributaries.

Secondly, I wish to express publicly to the Secretary of the Interior, to the Director of the Water Pollution Control Administration, and particularly to Mr. Eugene Jensen, its Director for the Mid-Atlantic region, my appreciation for holding these hearings here in Annapolis; and more, for the determination they have demonstrated to carry out the intent of the Congress expressed in the Clean Water Restoration Act of 1966 and the Estuarine Preservation Act of 1968.

I would like to say how grateful I am that Governor Tawes has accepted the appointment he has accepted and has given to the Board of Natural Resources not only his experience but the dynamics of his leadership which I think will be most important to the conservation of the Natural Resources throughout the whole State.

Mr. Chairman, I will not dwell here on the magnificence of the Chesapeake and the waters of its great basin. The values of this resource are well known and are fundamental to our heritage.

However, Mr. Chairman, I would like to point out that in consideration of an estuarine area such as the Chesapeake, we are concerned with a far more complex and sensitive environment than the basin and drainage area of one of our inland rivers. The marine environment of Chesapeake Bay represents one of the most delicate balances in all of nature. When the term "multi-use" is applied to this great Bay, we must think not only of the many uses put to it by man, but we must think also of the multiplicity of its functions in sustaining a much wider area of the natural environment in the Mid-Atlantic region of the United States.

The total Chesapeake is far more than a body of water nearly surrounded by land. It is far more than a convenient artery of transportation. It is far more than a pleasant place of beauty and grandeur. It is, in truth, a vast and powerful matriarch of a grand ecology which is essential to the survival of man in the biological world, of which he is a part.

In the Clean Water Act of 1966, the Interior Department was asked to study and to recommend a national program for the preservation, use and development of the nation's estuarine resources. In 1968, the Congress further refined this directive through the passage of H.R. 25. The thrust of these laws and the responsibility for action under them, I assume, is well known to the agencies involved, both Federal and State.

In addition to the complexity of the environment of the Chesapeake Bay and its tributaries, the proposition is complicated further by the number of states and local subdivisions sharing it. The purpose of these hearings is to bring forward ideas which, when analyzed and evaluated, may become a foundation for a manageement system which, when implemented, will reverse the trends of pollution, erosion, and general deterioration of the resource.

From the outset, then, let us recognize the fact that we are dealing with a region. Any management system must have cooperative support from every subdivision in the region. Otherwise, the old saying that "a chain is no stronger than its weakest link" will apply to the overall plan and to the disciplines which the plan must effect.

I think this is the first fundamental concept that we must accept and build from if we are to really do the job.

After observing the work of many agencies in their special interests as they affect the Bay, I am convinced that certain fundamental action must be taken as an initial step in the development of a program which will truly be one of conservation, one that will counter the trends which have become well established, and one which lies within our capability to carry out.

This first step was authorized by the Congress in 1965. It includes the construction by the Corps of Engineers of a hydraulic model of the Bay with a related technical center. My concept of this center is a reservoir of standardized and centralized information concerning qualitative conditions throughout the basin. In order to effect desirable changes inthe Bay environment and to prevent undesirable changes, there must be data quickly available that can be used with confidence to support any overt or remedial action.

This becomes extremely important when considered in the light of the complexity of the total watershed. We are concerned not only with the integrity of the shoreline and water quality of the tributaries, but also with characteristics of salinity, temperature, chemical balance, available oxygen and all the rest.

Until we can develop a "weather map" which is current, so the investigator and planner can conclude from known conditions developed from accurate, standardized data, any action we take will fall short of what is required to truly preserve the Bay at anywhere near its full potential.

In addition to being a library of current information, the center would provide technical coordination of the work of different agencies which affect the management of the Bay. Techniques of systems analysis and automatic data processing, the use of mathematical models, as well as the hydraulic model, all should be brought into play for continued monitoring of environmental conditions throughout the watershed.

Once this center is operative, we will be able to measure against known conditions the effect of the input of pollutants, the loss of wetlands, the addition of hot water, the overlay of oil, and all other disastrous events springing from man's works as they affect the myriad of biological life which make the Chesapeake what it is. Any management system short of this kind of approach will be a hit-or-miss proposition. It may be a sop to the screaming conservationist groups, but it cannot in the end overcome the destructive force of man as he crowds into this region with his industry, his chemicals, his waste.

Following the concept of the hydraulic model and technical center, which in themselves must be regional in their function, we must wade through the political problems of regional management for the environment of the basin. This will be a matter of education. Knowledge of what has to be done to save the Bay must be imparted to political leadership throughout the region.

The greatest tool that can be developed, again, is factual information based on accurate, standardized data. If the City of Baltimore really knows what it is doing to the Bay, and really knows what the Bay means to it, a plan for action in Baltimore will have a firm and logical basis. The same holds true for Washington, on the Potomac; or Richmond, on the James; or any county or town.

The designation of areas of marsh, of wetland, of historical interest, of fish spawning grounds, of oyster bars, of clam areas, of sponge crab areas -- and the isolation of these areas in the pristine state -- is not enough. For these areas can be swept over by pollution and destroyed by turbidity, or overcome by chemical change. In a fluid environment, there is no isolation. DDT off the farms of Kent County can destroy the baby crab near the Virginia Capes.

Mr. Chairman, unless we reach for a whole new standard of management for the estuarine areas of our great nation, the words and the laws we have passed will have been wasted, and the funds we have appropriated to provide these studies and recommendations will have gone for nothing. There is too much evidence around us -- in the polluted rivers of the interior, in the dead sea that vast areas of our Great Lakes have become, and yes, right here in the Chesapeake Bay -- that on his present course, man is consuming his environment, rather than enhancing it.

Here in the last third of this century, if we, as a great nation and as builders of civilization on this planet, do not stabilize the quality and condition of our estuaries, of our water resources, and of the vast habitat that must be shared by man and the rest of nature -- we, indeed, might plot with accuracy and with finality a point on the graph of time beyond which we cannot survive.

Thank you, Mr. Chairman, and if there are any questions that you would like to ask me, I stand ready to answer them.

MR. McKEE: At this point I would like to recognize Mrs. Edna P. Cook, Member of the House of

Delegates, who is with us today. She does not indicate that she wishes to speak. Delegate Cook is here with us. (Applause.)

DR. CRONIN: May I ask a question of Mr. Morton?

MR. JENSEN: Certainly.

DR. CRONIN: I would like to ask if you have further comment on the approach to organization of the Federal role in the Chesapeake and the effective integration of the States which, as you have indicated very clearly and very directly, must both be involved or we fail. I would appreciate further expansion on this.

CONGRESSMAN MORTON: Dr. Cronin, I would like to draw a parallel between the same problem as it exists in other river basins where we have used the federalized pact or the basin pact as a means of involvement of Federal and State authorities.

Then after the pact is developed or the authority is developed, it seems to me that then we have to tailormake management responsibilities on a joint venture basis. It would seem to me that rather than to create a Chesapeake Bay Authority and have that Authority hire a great many people, technical people, and overlay that on the State and Federal agencies that are involved in specialized aspects of management, we would do well perhaps to innovate here and create a concept and then as, for example, we have some military installations which are manned and run by a composite of civilian agencies and various military services, I think we could come forward in the technical center concept with a new command, so to speak, that would be contributed to in the management field by the States involved and by the Federal agencies involved. So that we didn't create a new layer, in effect, or a new whole authority, but that we utilized in a coordinated way all the talent and scientific input we have available to us in the human resource now.

This is the concept that of course would need refinement, study and scholarship.

MR. JENSEN: Our next speaker will be Dr. Gordon M. Cairns, Chairman of the Maryland State Soil Conservation Committee, University of Maryland.

In general, we will follow a sort of alphabetica progression, working from both ends of the alphabet, which will put the "J's" last. Our reason for doing this is, we didn't know until this morning how many statements we would have. It appears there will be about thirty.

STATEMENT OF DR. GORDON M. CAIRNS, CHAIRMAN, MARYLAND STATE SOIL CONSERVATION COMMITTEE, UNIVERSITY OF MARYLAND:

DR. CAIRNS: Mr. Chairman, members of the panel, ladies and gentlemen, I appear before you to speak in behalf of the Maryland Association of Soil Conservation Districts, they could not be represented today, as well as Maryland State Soil Conservation Committee, of which I serve as Chairman.

The Maryland State Soil Conservation Committee, the Maryland Association of Soil Conservation Districts and the twenty-four individual Soil Conservation Districts draining into the Potomac River and Chesapeake Bay in Maryland ar vitally interested in the Chesapeake Bay. The Soil Conservation Districts have active conservation programs which hav direct bearing on the quality of the waters of the estuary.

Since 1938 the Soil Conservation Districts have been involved and participating in programs to control soil erosion and run-off. Until recently, these activities have been centered predominantly on protecting the agricultural land. Large areas now have adequate treatment. In recent years, however, as land has been transferred out of agriculture for development purposes, soil erosion and subsequent sediment problems have shifted to these urbanizing areas. With the assistance of Federal and State agencies, Soil Conservation Districts have taken the leadership in encouraging procedural arrangements in their various counties to reduce erosion and sediment during urbanization.

Sediment control programs are now in effect in Maryland in Montgomery, Prince George's, Anne Arundel, Howard and Baltimore Counties; similar programs are under consideration in other counties within the State.

The implementation of sediment control programs can and will have a desirable effect in reducing sediment flow into estuarine waters. We urge support of needed research to improve these sediment control programs. These might relate to measurements, evaluation of present practices and development of new practices that may be implemented.

Also affecting the estuary is the Small Watershed Program under the Watershed Protection and Flood Prevention Act of 1954 administered by the United States Department of Agriculture, Soil Conservation Service. The State Soil Conservation Committee reviews all applications for assistance in the Watershed program. The Soil Conservation Districts, the County, Watershed Associations or other groups sponsor all applications and carry out the land treatment and other measures. Two types of programs are in effect in Maryland. Under the Watershed Program west of the Bay, impoundment type structures are used to control the run-off of flood waters and to store sediment. Combined with land treatment, these structures are very effective in further reducing the sediment flow downstreat and studies have shown trapping more than 90 percent of the sediment which enters the impoundment.

East of the Bay, due to the topography, this program largely involves channel improvement to reduce floods and improve drainage of agricultural lands now in production. The effect of these channels on agricultural production is well known and of considerable economic importance to Maryland. On the other hand, their effect on the estuary and related resources is not so well known and is considered controversial by many fish and wildlife interests.

In view of the importance of agricultural drainage to the economy we urge an objective study of these effects with appropriate recommendations, which can help to contribute to the total improvement of the Chesapeake Bay area. Thank you.

MR. SILBERMANN: I would like to ask Dr. Cairns this.

As you know sediment is declared a pollutant in the waters of the State of Maryland. At the same time, studies by consultants have concluded that the State should not be the principal or primary agency to actually effectuate sediment pollution, that this ought to be possibly on the local level.

Will you comment on this and indicate whether you feel that the technology is now available to begin throughout the State of Maryland an adequate sediment pollution control program?

DR. CAIRNS: I am not sure I can answer that directly, sir. I would say, however, that in an effort to approach this problem, this is the reason why these local sediment control regulations or provisions have been adopted by several counties in an attempt to correct the problems which were made manifest, especially in the rapidly developing areas.

There may be additional information needed that would be helpful here because as technology advances, new methods of removing or preparing land for building and so on are put into play to reduce costs and the like.

Therefore, there must be some way of establishing and carrying out a more effective system of regulation than has been possible to date under any circumstances.

MR. SILBERMANN: Could you also comment on how effective in your judgment some of these county sediment control programs have been?

DR. CAIRNS: The only one I have had opportunity to observe has been in Montgomery, since that was the first one initiated. The review that was recently made, we found in certain circumstances an excellent job had been done, much has been contributed there. There are still some loopholes that have to be covered, and that will be true in any county and in any program.

CONGRESSMAN MORTON: It might be out of the ordinary for me to ask questions, not being a member of the panel, only a witness, but the question I have is directed to the information that is available to you in the way of current data as to input into the tributaries and thus into the Bay of pollutants that you are interested in, and you have mentioned here in your statement.

Do you feel that the agencies or the people who are concerning themselves with this problem have enough data and enough information to make accurate judgments as to the effect of this course of action or that course of action or of this amount of pollutant or that amount of pollutant as it finally winds its way into the Bay?

DR. CAIRNS: Congressman, I am not sure I can speak to the total pattern, but we are concerned actually first about the sediment problem as it relates to erosion of lands and the like. When it comes to waste and other materials that come from other sources, some of the others are perhaps in a better position.

We feel, however, there is additional information needed and guidelines that need to be developed as a result of research, not only as to what is happening now, but as technology changes, we have to meet new circumstances.

CONGRESSMAN MORTON: Could I ask this further question?

DR. CAIRNS: Surely.

CONGRESSMAN MORTON: Do you currently know in the University or any other agency supported by State or Federal government what the erosion rate is in the tributaries and in the basins?

DR. CAIRNS: I don't think a precise answer can be given there, sir.

CONGRESSMAN MORTON: Don't you think this would be valuable information to have?

DR. CAIRNS: If we had it, it would be most helpful.

CONGRESSMAN MORTON: Thank you very much.

MR. JENSEN: Are there other questions from the panel? If not, thank you, Doctor.

Dr. Anderson is our next speaker.

STATEMENT OF DR. RICHARD R. ANDERSON, BIOLOGY DEPARTMENT, AMERICAN UNIVERSITY, WASHINGTON, D.C.:

DR. ANDERSON: Thank you, Mr. Jensen. I want to make a short statement about some of the aspects of some pollution aspects I observed in the State in the last year or so in a series of studies I made and also technique I believe to be a valuable tool in future water quality surveillance and studies.

I am going to attempt to use a lantern slide project or here, and I will have to jump back and forth and change slides. So if you will put up with that, I will appreciate it. Can we turn the lights out, please?

Last summer for two months I made a survey of the wetlands in the State of Maryland for the Natural Resources Institute and was happy to see we still have a vast wetland resource in the State that is relatively undisturbed.

I also observed some problems we have in the State, and of course this relates very directly to the estuarine problem, estuarine resource and pollution problems.

There are various ways in which wetlands are disturbed in the State. I have just a few up here which I am afraid aren't shown very well. Upper left-hand slide shows one of the creeks where extensive sand and gravel operations are going on. This results in extreme sedimentation, marshy Poke Creek in Dorchester County. Reading down on the left, looking down on the left, filling, bottom left slide is ditching also occurring in many marshland areas.

Top right-hand slide shows one of the small streams in Prince George's County in which filling is occurring with garbage and other materials that are the result of building operation in the area.

Reading down again on the right, middle slide shows material being taken out of the estuary along the shoreline being dumped on marshlands. This is then spread around by bulldozer, used for fill material.

Finally in the lower right-hand slide some wetlands are being dredged out, being used for boat docking areas.

We have pollution problems in the State. They are not as extensive as we find in other areas. Probably the most dramatic can be found on the Eastern Shore where we have chicken rendering plants. These are located at Stockton, Maryland, and also near Bishopville, Maryland. They are putting, as far as I can tell, raw, untreated material into the streams. The series of slides on the left, looking down, show the color of the water. You might be able to notice the black areas in the water on the top left-hand slide in particular, the nutrients going into the water are so rich that it is practically devoid of life, but it does have fairly high bacterial count, respiration from these bacteria is so rapid near the bottom that one gets periodic blips or belches from the bottom of this very dark material, very severe odor problems.

Top right-hand slide is a cannery located near Queen Anne. Here you can see this white milky material that is dumped into the Tuckahoe Creek occasionally. They do put most of it out onto agricultural land at this time. Occasionally they have pumping problems and have to use an effluent and dump it into the creek.

The middle slide on the right shows the result of nutrients coming into these areas. This is Bishopville Pond. You can see the greenish color of the water and also the algal material blooms that occur around the edges of the creek as a result of high nutrient material in the water. Once again this contributes to a very severe odor problem.

In the lower right-hand slide, that shows Georges Creek. This shows effluent from the West Virginia Pulp and Paper Company dumped into the creek there.

As it turns out, as I observed this summer, the easiest way eventually, I think, to getting at the extent of water pollution problems in the State and on a larger area involved than just the State would be using aerial photographic techniques. There are presently two types of techniques that one can use as far as aerial photography is concerned. Top three slides show color topography and lower three, color infrared. The difference is in color infrared, any green or living plant material shows up as various shades of pink or red. This is a slide to compare the relative usefulness of these two techniques in water pollution surveys.

The two slides on the left show a creek feeding into the Patuxent River. The lower slide shows a pinkish hue to the creek. This is a PHYTO plankton bloom in the creek and can be attributed to runoff from agricultural fields, fertilizer applied to the agricultural fields, then in a heavy thunderstorm or something washed into the estuary, resulting in PHYTO plankton blooms. The color infrared photography would be much more useful in getting at PHYTO plankton blooms and also sources of nutrients inflow.

The other four pictures are of the Delaware River estuary. Of interest is the effluent from one of the chemical companies near the Delaware Memorial Bridge. You can see it as an orangish lightish area, it is hard to pick out on color photography. This was taken at 15,000 feet and haze becomes a problem with color photography. With color infrared, it is shown.

Two slides on the right show in more detail in the water the distribution of sediment as it comes out of the small creek and also the distribution of marsh plants.

It looks as though color infrared is going to be a technique that is going to be very useful in estuarin pollution surveys. This is a color infrared photograph of Patuxent estuary, once again showing how the marsh vegetation shows up in color infrared. This is taken at 10,000 feet, haze is never or very seldom a problem with color infrared and most days cuts through the haze and delineates marsh vegetation species very nicely. Very light pinkish areas are reeds, darker areas are cattail, and these are two very important species in our marshland systems. It is of interest to know how much of these types of plants we have. Using aerial photograph research in estuarine marshland areas is much more easily done. Attempting to work in these areas on foot, it is a real problem to get around.

Talking about sediment additions to estuaries a while ago, it appears color infrared photography will be an excellent tool in locating and estimating the amount of sediment pollution one has. This is once again in the Patuxent River estuary. The light-colored areas coming from the two small creeks at the bottom are waters that are very heavily laden with sediment. One can see the distribution of this sediment very nicely once it gets out into the Patuxent,and from this one can also tell a little bit about current patterns which are also of interest.

If one uses different filters with color infrared photography, you can get interesting effects, nice pictures to look at, but it will also be a valuable tool as far as doing certain types of estuarine research.

This is color infrared photography using a Wratten 61 filter instead of the normal Wratten 15. This, I think, will be useful in determining shoreline use of ou estuaries. It is easy to count the number of boats along the shoreline, number of docks, shoreline is very nicely delineated from the water areas.

In closing I would like to say that I think aerial photography, using color and color infrared film, should be an integral part of State and Federal water quality surveillance programs.

Thank you. (Applause.)

MR. JENSEN: Any questions from the panel?

MR. SANDERSON: Is there any State or Federal agency that at this time is routinely surveying from the air for pollution observations?

DR. ANDERSON: I didn't get the first part of the question. Sorry.

MR. SANDERSON: I would like to know if you know of any Federal agency or any State which is routinely surveyed from the air for pollution conditions?

DR. ANDERSON: No, sir, not routinely. Only thing I know of going on now is this research project I am involved in with the National Aeronautics and Space Administration. They are making periodic flights over this area at request only by area investigators.

The program, I think, certainly has promise. It initially appears to be a rather extensive undertaking, but when you see the amount of information you can get from using aerial photography and compare that with the number of investigators one would have to have inthe field in order to get the same kinds of information, I think in the long run, it is going to be a much less expensive tool.

Much of this is still in the experimental stage, but we are much further ahead now than we were a year ago. I think eventually we are going to get away from almost purely qualitative information to where we can get much quantitative information on these rather general water quality conditions. Salinity can be estimated, amounts and sources of sediment, temperature is something I didn't mention. Aerial photography, using infrared imagery, can be used to snow distributions of heate water from power plants that now have a computer program where one can run a photograph through the computer and get printed out the distribution of heated water in an area. It is certainly something one could never be using, or it would take extensive field operations to do the same thing.

MR. SANDERSON: One further question. Do you think this would be an area for Federal and State cooperation?

DR. ANDERSON: Federal and State cooperation? I always like to see cooperation. Probably the States would have to take the initiative in the thing. You can always request Federal cooperation, but I think it is going to be primarily a regional and State problem if you want periodic extensive surveys of the estuarine areas.

DR. CRONIN: Dr. Anderson, your study, I know, is in the very early stage. We haven't finished thinking about the potentials of it yet. We suggested last year it appeared to be desirable to conduct a series of studies of aerial photographs against ground checks. In other words, to get on the ground, be able to interpret the photographs quite accurately, it has been done partially, at least four times a year because of the seasonal changes, to develop methods which we understand rather fully. Then that consideration be given to a periodic inventory of the entire Chesapeake Bay and nearby Atlantic coastal areas.

I don't know how widely this should be applied.

Perhaps it should be done for the whole coastal region of the country when we have our techniques well established It seems to me it offers tremendous problems in tracking the changes that are occurring, understanding the contribution these marshlands make to production of estuarine coastal areas in detecting things at an early stage before they are lost.

Perhaps other speakers today will comment on the fact we lost some 15 percent of the wetland areas in the northern, northeast, and northwestern part of Chesapeake Bay, and many other areas are threatened.

It seems to me at this point, although we are not finished with our thinking, that this is a tremendous inventory tracking tool. I wonder if you are going to see the pattern you would like to see put on the Chesapeake and coastal areas. Can you comment further how frequently you think we need to fly?

DR. ANDERSON: We need to fly at least twice a year. We had a spring flight and fall flight over the Patuxent River and just recently received data from that. There is a tremendous change in photographic characteristics of the area with seasons. Very definitely it is going to at least initially require at least two flights per season, if you are interested in vegetational changes.

As far as changes in water quality are concerned, this is another thing. We get sometimes daily or weekly changes here. We have a severe thunderstorm and get tremendous amounts of sediment put into the estuary in a short period of time. Then we may go through an extended dry spell when we don't have any rain at all, and it will come all at once again. Sediment problems, salinity, estimates of salinity, temperature problems, things like this, could be a different story altogether.

Certainly as far as wetland inventory is concerned, a yearly surveillance probably would do the job very nicely. I would be very happy if we could work out a system where we could get at least a yearly flight of the region and be able to look at and detect areas that are becoming a problem.

DR. CRONIN: That sounds like the serious necessity is a research period, calibration period, and use and inventory period, yes?

DR. ANDERSON: Yes, research and getting now to the calibration part of it and the system and technique will become much more quantitative in the future, and there is no question but what it eventually, I think, will give us a lot of information about general water quality and marshland conditions with a very small input of time from individuals, someone to look at the photography and evaluate it. It will be a very useful technique, I think, in the future.

MR. SILBERMANN: Dr. Anderson, I know that from your slides during your studies, you had opportunity to see a number of specific water pollution problems or conditions.

DR. ANDERSON: Yes, sir.

MR. SILBERMANN: You mentioned poultry processing and some cannery observations. Did you have opportunity also to determine whether or not the proposals for correction would control the problems biologically in your judgment? In several instances I note, for example, that efforts have been made by the State agencies involved to provide corrective or have provided by the companies corrective facilities. Will these facilities, in your judgment if you know about these, be sufficient to control the biological effect on the water environ?

DR. ANDERSON: The only corrective measure I know of now is with the canneries where they now spread this material on agricultural fields, and the Federal government is interested in what they are doing to the soil by spreading these materials. They are carrying on some investigations along these lines, what they are doing to the soil. I know of nothing now being done by effluent from the rendering plants on the Eastern Shore. I know of nothing that is being done about this now. Certainly it could be done. One can stand on the road, for instance, and see parts of chicken entrails and feet So there is nothing as far as I know being done to it as it comes from the plant right now, being fed into these streams and eventually into the estuaries.

MR. SILBERMANN: Specifically, I think you refer to the Fisher Processing Company. In that instance, both the Department of Water Resources and Department of Health is making an effort through the courts to have something accomplished.

In terms of some of the poultry processing operations it would be of interest to you and to the people here today to know that plans right now are being made effective by special facilities, lagoons, which will significantly, we hope substantially, reduce the effects of dissolved oxygen but will also require chlorination so there will be no adverse effect or impact on the sanitary qualities but which may not in all instances significantly reduce some of the nitrogen and phosphorus in the discharge.

We don't know about this, and it is a developing problem. I wanted to know in your judgment whether you thought the conditions would be improved on the basis of the plans now underway or be made effective in terms of treatment facilities.

DR. ANDERSON: Anything would be an improvement over the situation we have at the present time. Of greatest importance here, as far as algal blooms are concerned, this is the serious problem and contributes to odor problems, with nutrient additions to water, nitrogen and phosphorus, these are limiting factors in the growth of these organisms. They cease growing once these are used up in the water.

If these are not being removed, I don't see that the bloom problem we have with the algae will be alleviated. If this is not removed to some extent from the water, this is a problem of sewage disposal. We have not effectively removed much of this material which is why it is still a problem.

MR. SILBERMANN: Do you feel then in order to achieve the control over these nutrients that the State will have to require advance treatment facilities? Do you think this is a necessary thing to protect the biological ecosystem?

DR. ANDERSON: If this is the only way to remove these nutrient materials, I would say Yes.

MR. SILBERMAN: Thank you.

MR. BRINK: We need to move along. Next is Mrs. George Barnes, representing the Potomac River Association.

Mrs. Barnes.

STATEMENT OF MRS. GEORGE S. BARNES ON BEHALF OF THE POTOMAC RIVER ASSOCIATION OF ST. MARY'S COUNTY, MARYLAND:

MRS. BARNES: The Potomac River Association and other citizens groups in St. Mary's County, Maryland, have been waging a war since June against an oil refinery complex proposed for Piney Point. This has rapidly become the subject of vital concern for many people on all sides of the Potomac. We realized very early that this was no small battle, that we were fighting to protect the entire lower Potomac and its tributaries, with its vast store of natural resources; our seafood industry and the livelihood of our 1,500 watermen, the outstanding oyster seed beds in the St. Mary's River, the vast number of waterfowl which inhabit the area year around, plus the thousands of migrating ducks, geese and swan of the Atlantic flyway who winter in these waters.

In addition, to fighting for the splendid recreational, tourist and retirement-living potential which is present in the area.

It became increasingly apparent that we were not merely faced with a small topping plant in a Foreign Trade Zone, but that this was, in reality, the beginning of heavy industry's "foot-in-the-door" and that it would only be a matter of time before Piney Point would become a large industrial complex. Southern Maryland, with deep water close to shore, relatively cheap land, and lack of zoning, is a prime target for heavy industry. It was learned that Standard Oil of California was a partner with the Steuart Petroleum Company in this project.

We citizens were amazed that when we appealed for help from the various State and Federal agencies, whose purpose is to protect our natural resources, we received a very slow response, little information and no assistance, with the exception of the Biological Laboratory at Solomons and the Potomac River Fisheries Commission, which Commission in September voted against the refinery and Foreign Trade Zone. We had to turn for help from the private organizations such as the Chesapeake Bay Foundation and the Potomac Basin Center for help from the citizens groups such as the Citizens Council for a Clean Potomac, and our neighbors in Virginia.

It was also a source of great surprise to the citizens to learn that the oil refinery was represented in public hearings at times by our State Economic Development Commission, who apparently was overlooking the overall good of a large area and of many citizens.

It was even a greater shock to the citizens to be denied the opportunity to present their side of the situation before the various State agencies, when the oil company position was presented upon a number of occasions. The Potomac River Fisheries Commission was the only department which scheduled a formal hearing at which both sides were presented.

We were also disappointed to learn that the Federal efforts to make the Potomac a national river and a model for the United States only included that part of the river above Washington, D.C. It doesn't appear at all reasonable to expend vast sums of money to clean up the upper part of the Potomac, while a new source of great potential pollution would be allowed to start at the lower end.

The decision regarding approval or disapproval of the oil refinery and Foreign Trade Zone is vested in our three-man Board of County Commissioners in St. Mary's County, one of the Commissioners who opposed the refinery, one of whom publicly stated his support for the refinery. The decision actually, therefore, rested with one man. This is in reality completely out of balance, when one realizes that not only the future of St. Mary's County would be permanently affected by this decision, but also the future of the other counties in Maryland and Virginia who border on the Potomac.

In mid-July, our County Commissioners appointed a nine-member Citizens' Committee to study all aspects of the entire situation. The study was completed on October 17, with a vote of 5 to 4 against the project. It was considered by the majority of the Committee that the potential dangers far outweighed the advantage of increased tax revenue.

St. Mary's County is in need of new tax revenues, and this was the great lure of the Steuart proposal. On October 19, a letter was received by the Study Committee from the Maryland Department of Game and

Inland Fish, stating this agency's opposition to the oil refinery.

On October 25, the County Commissioners voted 2 to 1 against the Foreign Trade Zone. Action has not been taken to date, to our knowledge, on the State level; however, Governor Agnew stated during this past summer that he would support the decision of the County Commissioners; and the Maryland Port Authority stated that they would abide by the County Commissioners' decision.

May I conclude in quoting in part from the introduction to the Majority conclusions of the Commissioners' Study Committee.

"The proposal for a refinery and Foreign-Trade Zone at Piney Point raises fundamental questions with respect to the use of the lower Potomac and other tidewater areas of Maryland. The Potomac River is more than a valuable water resource; it is a priceless natural heritage which the present generation has an obligation to use wisely and to preserve for posterity. Each industrial firm, power plant and city -- each and every citizen of the entire Potomac Basin -- must bear a share of that responsibility."

Experience throughout the United States and abroad has shown that all heavy industries, including refineries, result in some significant deterioration of the area's environmental resources, water, air, and scenic, due to pollution from their waste discharges and by their presence. In recent years very substantial advances have been made in the technology of treating industrial wastes in an attempt to minimize adverse environmental effects and in governmental regulatory mechanisms for enforcing utilization of new technology. Nevertheless, the technology is far from perfect, and this will likely be the case for a long time if not indefinitely. The practical implementation of the new technology is also a problem. It is uncomfortable to think of Piney Point as a "Pilot Project" for pollution control.

It is also true that once the first heavy industrial plants are established in an area, the likelihood and probability is that additional industrialization will follow, both in the expansion of existing facilities and in the establishment of new ones.

One of the biggest problems in the United States today is that with the rapid growth of population and production, heavy industry is tending to occupy all areas, including the areas which ought to be preserved for seafood production, wildlife, recreation and other uses not compatible with heavy industry. There is need that some unusually attractive areas, strategically located with respect to population centers, be preserved for recreational and other rapidly disappearing uses. Once such areas have been occupied by heavy industry, the expense of reversing the situation is prohibitive.

Approval of a Foreign Trade Zone and construction of a petroleum topping plant in St. Mary's County would be, we believe, an unmistakable signal to heavy industry everywhere that responsible management of natural resource quality was not a high priority in Tidewater Maryland. The Bay and its tributaries would become targets of heavy industry and materials processing. This would be the beginning of the end of Tidewater Maryland as an attractive area in which to enjoy living, working and recreation.

Any reasonable overall planning for the State of Maryland should add refineries and other heavy industry to already existing industrial areas. The Chesapeake Bay and its tributaries should be reserved for tourism, recreation, seafood production and other uses not in conflict with our natural resources. Few States or regions have such immeasurably valuable natural resources as the Bay and its tributaries.

St. Mary's County has made an all-important decision regarding the future of the Chesapeake Bay estuary. It is vital that this decision receive the full support of every citizen in every area of the Middle Atlantic region and of every agency of that area. It is important that necessary regulations and enforcement be effected to protect this area of unsurpassed natural resources.

I have summarized today the intensive efforts of the citizens of St. Mary's County to preserve the fundamental quality of our environment, our clean water and air and our estuarine resources. At long last we have seen responsive action by our County government, action which may or may not endure, depending as it does on future decisions at other levels. Our State government has not as yet, shown much involvement in our problem, repeatedly stating that this was a local problem.

Our Interstate agencies can only advise, not act. We welcome this hearing today by a Federal body, for your interest may in the long run, be the major force which will preserve our river. Thank you. (Applause.)

MR. JENSEN: Thank you, Mrs. Barnes. Do the members of the panel have any questions?

MR. PATE: I would like to ask Mrs. Barnes to elaborate on her statement that the Maryland Economic Development Commission represented the oil refinery at public hearings. What hearings were these, Mrs. Barnes?

MRS. BARNES: I stand corrected. You have not represented the oil refinery at public hearings. The only public hearing which has been granted was by the Potomac River Fisheries Commission at which Saul was present.

I was referring to the meetings which have been held on the State level at which the Potomac River Association has requested to be represented. We have not been represented at those meetings, State Economic Development has been.

MR. PATE: To your knowledge, have any private organizations such as yours been invited to any of these meetings?

MRS. BARNES: Not to my knowledge, no.

MR. JENSEN: Thank you, Mrs. Barnes. Certainly, the Piney Point episode brought into focus many of the problems of estuarine management and future development.

I would like to recognize Mr. Al Pasler in the back of the room. Mr. Pasler is the Executive Secretary of the Virginia Water Control Board. Will you stand up, please?

Our next speaker, then, is Mr. William H. Waters, Jr., who represents the Citizens' Council for a Clean Potomac. I believe he also will speak on the subject of Piney Point.

STATEMENT OF MR. WILLIAM H. WATERS ON BEHALF OF THE CITIZENS COUNCIL FOR A CLEAN POTOMAC:

MR. WATERS: I am William H. Waters of Washington, D.C. I appear on behalf of the Citizens Council For a Clean Potomac. I am Chairman of its Potomac River Study.

The purpose of the Citizens Council is to work toward ending pollution of the Potomac River and its tributaries; to aid in the conservation and development of the resources of the river and its tributaries and their valleys; and to assist in restoring the natural beauty of these waterways.

It is indeed fortunate that the Potomac River Basin has been spared the commercial and industrial shoreline development experienced in most river basins throughout the Nation. Credit for holding the line must be shared by individual citizens, citizens groups, and responsible public officials as well as public agencies working with and through such groups.

The Citizens Council For A Clean Potomac is, as always, interested in the protection of the Potomac River Basin from any and all action that will now, or in the future, have an unfavorable effect on the legitimate uses of the waters and related land resources within the Basin. Today we will direct our comments toward the need to preserve the marshes and wetlands located in the Potomac Estuary.

The Citizens Council expresses its grave concern regarding the proposals in the Solid Wastes Disposal Study prepared by Black and Veatch - Consulting Engineers, recommending usage of valuable marsh and wetland areas along the Potomac River, including its tributaries, for sanitary land fill.

One of the issues today is the essential matter to prevent further consideration or expansion of the current operation or the establishment of an oil topping refinery plant by the Steuart Petroleum Company on the Potomac River at Piney Point, Maryland.

We favor reasonable development within the Basin, an orderly growth through planning and management on a regional basis that will be in harmony with the total Basin, and not on a piecemeal basis as the above proposal. Conservation and preservation of the marshes and wetlands must be a key element in the planning, development, and management of changes to be effected in the Basin. Protection of marshlands will enhance the quality of development of surrounding areas and will advance the economic self interest of each jurisdiction.

The Potomac Estuary, with nearly a quarter of a million acres of water surface and hundreds of miles of scenic shoreline, is a fisheries resource of enormous value, and a rich wildlife asset. Not enough people realize the present and potential values of the less than 50 marshes remaining in the lower Potomac. It is impossible to place a dollar value per acre on these areas, but such a value would certainly exceed several times that which industry could pay for their use.

Although only a few citizens know the names of the birds that depend upon the marsh and wetlands for survival, herons, egrets, ducks, geese, coots and grebs, hawks and ospreys, and a few bald eagles, there are thousands of citizens with a desire to preserve the balance of natureto the degree possible, who will fight for the preservation of these areas.

The aquatic environment including that of lower animals, insects, worms, et cetera, and plant life must be protected if the birds and fishes are to survive.

There are numerous benefits to be derived from the preservation and development of the marshes and wetlands. One of the most important reasons to maintain and develop these areas is to assure the continuation of the ecological balance of nature by providing protection of the food chain used by fishes that inhabit those waters. The marshlands serve as spawning grounds, feeding areas, nursery, and passageways for a great variety of aquatic life. Marine biologists estimate that two-thirds to three-quarters of commercially valuable seafoods, fish, clams, oysters, and crabs, depend on estuarine waters for all or part of their life cycles. The Potomac Estuary as a part of the Chesapeake Bay Region is one of the Nation's most fertile areas producing tons of plant stuff per acre each year.

In St. Mary's County and elsewhere along the Potomac River including its tributaries the 1967 average dockside value of oysters was $4 per bushel. This amount is one-third of the consumer value. The total dockside valuation was $3,380,900, 830,225 bushels, with a consumer value of $13,523,600.

This harvest in St. Mary's County was brought in by approximately 1,500 watermen. The watermen of St. Mary's County represent 26 percent of the licensees in the State which is the highest number of any Maryland tidewater county. The St. Mary's River is a State seed area, and is regarded as a superior location.

The marshes and wetlands provide wintering and feeding grounds for migratory birds. St. Mary's County tidal waters of the Potomac River support the largest concentration of wintering canvasback ducks in the United States. Fourteen other varieties also winter in the area as well as Canadian geese. It is estimated that a daily average of 40,500 ducks, geese and brant utilize the waters of the Potomac River adjacent to St. Mary's County from November to April each year. This means that for approximately 180 days each year 40,500 waterfowl could be endangered by an oil spill.

This is why we are gravely concerned and say that pollution caused by oil spills and oil discharges and other type of effluent is a big danger.

The plan to establish an oil refinery at Piney Point includes the construction of an unloading dock several thousand feet from shore, in presumably midstream. A pipeline from this dock to the shore will be used to transport the oil from ship to shore. Many possibilities exist for oil to escape to the Potomac River.

Some of the oil will float, some will sink to the bottom. The fresh water coming downriver rides over salt water coming upriver during changes in tides. The oil thus released will be transmitted to all parts of the river and shore areas.

When such oil reaches the marshes and wetlands, the damage done to vegetation and aquatic life is not completely identifiable. However, if shoreline vegetation is killed it will take at least two years for it to recover, provided another release is not experienced. No one knows the time required for aquatic life to recover, if ever.

Where aquatic vegetation is killed, it will increase the oxygen demand in that area and/is likely to cause a fish kill.

To date, according to records of your Administration, there have been five oil spills directly attributed to ships delivering oil to the Steuart Terminal. A spill caused by a ship such as that which occurred on February 9, 1963-, 1,200, 1,500 barrels, could be disastrous to local properties, and the seafood and wildlife population.

We believe that the proposed facility should not be allowed.

There is a lack of information to evaluate the effects of pollution caused by oil discharge and spillage in the aforementioned areas. We recommend that a study be conducted to determine these facts. Such a study will require two to three years, maybe longer.

The river is fairly clean in this area. Let's keep it clean. Further, we agree with the approved water quality standards for this area of the river and the "No degradation policy". We continue to support both and encourage their enforcement.

Mr. Chairman, on October 4, the Citizens' Council conducted a random survey of the Potomac River from Seneca Creek to Piney Point. On the flyover at the Steuart Oil Terminal pictures were made which give evidence of pollution caused by oil leakage, discharge or spillage.

Dr. Anderson, who has previously been on the stand this morning, a marine biologist specializing in aerial photography, will show and interpret the findings as revealed in colored prints.

The testimony I have submitted this morning will be supported by a notarized statement of the gentleman engaged by the Citizens' Council for a Clean Potomac to make this random survey of the Potomac River.

MR. McKEE: Will you be able to provide black and white pictures for the record?

MR. WATERS: Yes. The gentleman whose services we engaged is Captain Carl H. Strandberg, United States Marine Corps, Retired, who is an aerial reconnaissance consultant and member of the California Water Pollution Control Board.

The pictures will be submitted in evidence, and I might add that those that we have today can be replaced by infrared shots which are now being developed by the Eastman Kodak Company in Rochester, New York, which are much sharper than those we will present for your edification.

DR. ANDERSON: These are not going to be very visible. This probably is the sharpest one if I could show this. It is a closeup view from the airplane of the interface between the upper water which was further out into the river and this water which has been interpreted by Mr. Standberg as containing oil, a very sharp interface, sharp difference between upper clear water and lower darker water. This has been interpreted as oil by Mr. Standberg and certainly must be that way.

MR. JENSEN: We will include the complete set of photographs in the record. If you wish to request additional narrative to go with them, please feel free to do so.

(Photographs referred to above, available in Middle Atlantic Regional Office, Charlottesville)

Do the members of the panel have any questions of Mr. Waters?

MR. PATE: I assume you know the Steuart operation has been in existence for some nineteen years, is that correct?

MR. WATERS: Yes, the Council is aware that they have been operating there for almost two decades.

MR. PATE: Do you know how much oil they have handled in and out of that facility in that period of time?

MR. WATERS: I am not at this moment prepared to indicate the gallonage and tonnage that has passed over that dock.

MR. PATE: It is some 10 billion gallons. What did you state the spillages were?

MR. WATERS: The spillages recorded in the FWPCA report at the particular date stated was about 1,200 to 1,500 barrels.

MR. PATE: This was in, you say January 1963?

MR. WATERS: That's correct.

MR. PATE: You directly connected that with the

Steuart operations, is that right?

MR. WATERS: We didn't directly connect it. We said, Oil being delivered.

MR. PATE: I think that is an error. I think there is a spillage resulting from a ship that was in distress that came to their dock and tied up and sank. I don't believe it had any connection with the Steuart Petroleum Company directly, and it would have occurred no matter who might have had any kind of operation in or about the Bay.

In any event, I personally will apologize to the panel for this issue getting injected into this hearing. I didn't know it was coming up. I think since it has been brought up by the last two witnesses, that in all fairness to the State agencies who have been directly and indirectly accused of dereliction or negligence, there should be included in these hearings in the record certain documents, especially, I would say emphatically, the report prepared by the subcommittee appointed by the St. Mary's County Commissioners. I have not read this report yet myself. It has not been officially delivered as far as

I know. But I am willing to trust it to give a fair presentation of the issue.

Much more could be said about it, but I don't believe it would serve the purposes of this hearing to continue these discussions on this particular issue. It has been a very emotional and very difficult issue in Maryland for some months, but I think our purposes here are much broader than the Piney Point issue.

MR. WATERS: I quite agree. The Potomac Council is concerned with every aspect of the Potomac River from its starting point all the way to the Bay. I endeavored, Mr. Pate, to be very specific, and I realize the circumstances that prevail. It may or may not be proper, but I think that the interest, certainly the interest of our Council, I rather imagine the interest of other citizens' groups, is that they look to the Federal and State agencies first and foremost to protect the community and citizen interest. Sometimes we don't find that, at least in my own immediate area, and these situations sometimes get shifted off into the gray areas.

The comments of the previous speaker, I am not personally knowledgeable of the precise experience. We do feel, however, that the entire river must be protected. As it was previously stated, it does no good to protect the upper reaches of the Potomac River above Washington and not to be equally concerned as to what happens elsewhere, not only on the river but throughout the region.

I was delighted to see this concept emphasized by Governor Tawes and Congressman Morton.

MR. METZGAR: Mr. Waters, first are you aware the State Legislature a year ago expressed concern for the proper management of the wetland and estuarine areas?

MR. WATERS: I understand such a statement was expressed.

MR. METZGAR: As a result of that statement a study is now underway. Were you aware of that?

MR. WATERS: We have some information that a study is underway at the present time.

MR. METZGAR: The second part of the question I would like to ask, you are talking about preservation, protection, actually you are implying some type of management. Could you make some statement or recommendation as to the type of management you would favor, acquisition, zoning? If you are going to preserve, you are managing. What mechanism would you recommend?

MR. WATERS: First I think it should be pointed out if we talk about the lower Potomac and St. Mary's County in particular, that this is the only Virginia area between Norfolk and New York that remains with the great possibility of development, for recreation and retirement living. It was referred to as tourism. I think it is important for tourism, too.

This comes into even sharper focus when we realize the coming megalopolis, particularly from Washingtonand Baltimore. It is regrettable, I think, that there is not the prevailing mechanism in St. Mary's County through the means of zoning to bring forth controlled development, controlled management for this area.

Local zoning isn't going to do the whole problem. Isn't going to serve and meet the needs of the community. This has to be a regional consideration. It also has to be Federal consideration, I would submit.

There are many Federal agencies vitally concerned and with major responsibility for the Potomac estuary. Whatever is done upriver or downriver cannot be separate from the environmental considerations of those who are associated with the river in its reaches of 250 miles. So this must be done through zoning. It must be done through regional management. It must be done with the determination of all agencies involved to carry forward and administer their responsibilities to the advantage not only of the local population but looking forward to that which is essential in terms of the generations to come. We have a responsibility to posterity. I am not always certain that we understand it and when we do understand it, there is substantial evidence that we do not measure up to that which will mark us as a generation of leadership.

I would say that zoning is essential, regional management, I think, is mandatory. Further, the awareness that the environment must be improved and all steps taken that are necessary to not only maintain but to substantially lift the quality of that environment.

MR. JENSEN: What do you mean by regional management? Might the State, for example, be considered as a "region"?

MR. WATERS: It would be my view that a cooperative relationship among the States, community organizations, the local subsidiary political jurisdictions, and the interests of the Federal government be brought into focus.

The proposal that Congressman Morton offered certainly needs study. I think on the surface it has many considerations that would commend it. But I think this is one of the things we have to take a look-see at. I would certainly not say I am prepared nor would I presume at this moment to anticipate the view of the collective membership of the Citizens' Council for a Clean Potomac, which approximates 400 to 500 citizens and civic and service organizations, but this is a consideration that we would be happy to share our thinking with your Administration and all others in the Potomac estuary and groups that would have collateral interests in the Chesapeake Bay region.

MR. COULTER: Mr. Waters, first I want to thank the Citizens' Council for a Clean Potomac and you and Mrs. Barnes for coming here today and making the statements. There are several issues that are raised that I would like comment on.

First is the issue of solid waste disposal. I really have no control over what Black and Veatch or any other consulting organization might put in a report to the Council of government or any of the subdivisions, but let me assure you, sir, the wetlands of Maryland will not be used for sanitary land fills or for dumps. Every sanitary land fill or every solid waste disposal site that is installed in the State, changed or altered, from this time forward must have a permit from the State Health Department, and I cannot conceive of the circumstances under which the State Health Department would permit a dump or any kind of solid refuse disposal site to go into a wetland.

I might suggest to the Citizens' Council that they take a hard look at the solid waste disposal practices now going on in the counties that border on the

Potomac, because while with you I share a deep concern for the future, I am also very much concerned with the present and quality of our life in the present.

To that point the question of Piney Point has been raised, and quite admittedly this is an ill wind type of situation for a regulatory agency. We are criticized from both sides for not doing our job when, in fact, we are doing our job.

I am rather perplexed by the situation of an oil port which was opened almost twenty years ago in Piney Point in St. Mary's County, where some 10 billion gallons of oil have been imported into the State through that port, we flew over the river yesterday, there was a tanker unloading, I shared deeply the concern of the Citizens' Council and all other people that pointed out the dangers of an oil spill in the Potomac River. But it seems to me that the issue of a foreign port was a red herring. The real issue is, what are we doing to protect our waters against accidental spills or deliberate spills right now with the operation that is going on right now? I think if the Council has some suggestion or the County

Commissioners can make some requirement at this time, now is the time to do it because certainly an oil spill with the installation we have would be catastrophic.

I think we should look toward what kind of portection are we giving to our waterways right now and take care of these proposals for enlargement or tax incentives or whatever they might be as they come along, but I am concerned with the present situation.

MR. WATERS: I think it would be appropriate for me to say that assuming the hearing record will be open within the next thirty days, the Citizens' Council will furnish a statement concerning the essence of your remarks. I am delighted to hear the position enunciated by you concerning land fills on the Maryland side. I think this cuts out our work for the geography on the opposite side of the river. Thank you.

MR. JENSEN: Thank you very much, Mr. Waters.

(Applause.)

Our next speaker, Dr. Norton Dodge, representing the Patuxent River Citizens Association.

Dr. Dodge.

STATEMENT OF DR. NORTON T. DODGE ON BEHALF OF THE PATUXENT RIVER CITIZENS ASSOCIATION:

DR. DODGE: Mr. Chairman, members of the panel, and ladies and gentlemen, I speak here not as an economist at the University of Maryland but as a concerned citizen living on the shores of one of the Bay's estuaries, the Patuxent. I represent the Patuxent River Citizens Association. I might also add that for the past three months I have served as Vice-Chairman of the St. Mary's County Commissioners' Study Committee to evaluate the proposal to develop an oil refinery at Piney Point. As you may know, the Committee recommended against the establishment of the proposed refinery. The Committee also made some recommendations relevant to the proceedings here. A number of them will be mentioned in my statement. A fuller statement will follow prior to the Hampton hearing.

In the interest of preserving the unique and valuable water and recreational resources of the Bay and its tributaries, the following are recommended:

1. Passage of State laws in Maryland and Virginia requiring the granting of water use permits prior

to rather than after construction is begun on a project.

2. The establishment of overall zoning or planned land use of the shores of the Bay and its tributary estuaries. An interstate body should be established for this purpose, utilizing, perhaps, existing agencies such as the Board of Natural Resources in the State of Maryland as a component of the interstate board.

It seems clear that wise and farsighted planning of the multiple uses of the Bay and its estuaries will be required to preserve it for all of its uses, particularly for the production of seafood and for recreation. It is also clear that both Maryland and Virginia must cooperate in this effort, as well as the District of Columbia.

3. Laws should be developed to aid in the control and reduction in damage from oil spills. In particular, petroleum loading and unloading facilities shoul be required to have available various protective devices, such as booms, and other mechanical devices for cleaning up any spill which occurs. Chemicals should also be available to aid in the cleanup, but these should be non-toxic to marine life. Consideration should also be given to

limiting the loading and unloading operations to weather conditions which are not unduly adverse and, possibly, to daylight hours.

4. Consideration should be given to spelling out in greater and more specific detail what is admissible in industrial waste discharge. These standards should, it would seem, be applied to the waste discharge itself and not applied after mixing occurs inthe Bay or estuary.

Additional and fuller recommendations will follow.

MR. JENSEN: Thank you, Dr. Dodge. Do members of the panel have questions?

MR. GOLDSBERRY: We heard a lot today about tankers. As a member of a management agency, we find also we have problems every year with general shipping. Even though we do have present legislation which says you may not pump your bilges, they still pump their bilges.

As to your Committee, or any other committee, do you have any recommendations to make in regard to some way to solve this problem?

DR. DODGE: I suspect that a number of groups would have some recommendations. I think the main problem is enforcing existing laws. It may be sensible that some facility for receiving the bilge waste be required at any port facility. I am not personally certain what facilities are at such ports as Baltimore at the present time. At any petroleum handling facility it would seem desirable there be required that the bilge be transported ashore and then processed along with the general waste. That would be an elaboration on perhaps one of the suggestions here which we could go into when I prepare something more fully.

MR. JENSEN: Our next speaker will be Mr. John Hewins, Maryland National Capital Park and Planning Commission.

STATEMENT OF MR. JOHN S. HEWINS ON BEHALF OF MARYLAND NATIONAL CAPITAL PARK AND PLANNING COMMISSION:

MR. HEWINS: Mr. Chairman, members of the panel, ladies and gentlemen, I am John Hewins, Governmental Coordinator, Maryland National Capital Park and Planning Commission, planning and zoning jurisdiction in Montgomery and Prince George's County, Maryland.

The Park and Planning Commission appreciates this opportunity to present a statement on the estuarine problems of the Potomac and the Patuxent Rivers, two tributaries of the Chesapeake Bay.

Having been in the comprehensive land planning business for 40 years, the Commission is keenly aware of and interested in the problems confronting the estuarine portions of its jurisdiction.

I am pleased to go on record in noting the fact that the Commission has maintained a constant and vigilant position with regard to both protection and management of its estuarine areas. Early in the planning of both our two counties the Commission recognized the value of retaining large areas, particularly in our flood plains, in undisturbed open space.

The Capper-Cramton Act in 1930 enabled our jurisdiction, in cooperation with the Federal government, to develop jointly with the National Capital Planning Commission a program to acquire, develop and maintain stream valley park lands in many of our major tributaries to the Potomac River. This program has been active for many years, though in recent years no Federal monies have been available to support it. Nevertheless, the Commission has maintained a steady and agressive program of land acquisition and development in its stream valley parks system. In addition, the Commission has acquired several large regional parks which, in themselves, promote conservation of natural resources.

In the Commission's regional comprehensive plan, "On Wedges and Corridors", adopted in 1964, a copy of which I present for inclusion in the record, a broad but well-defined land development policy was adopted to preserve our shore lines along the Potomac and Patuxent Rivers. Basically, this regional plan called for low density zoning along the immediate shore line areas, protected further by public acquisition, either Federal, State or Local, of park lands bordering these two important estuaries of Chesapeake Bay.

The details of this important land development policy were promulgated in more detail in subsequent local area master plans; namely, the Potomac-Travilah Master Plan adopted in 1966, the South Potomac Sector Local Area

Master Plan adopted in 1968, the Fairland-Beltsville Master Plan adopted in 1968, the recently published South Laurel-Montpelier Preliminary Master Plan on which a public hearing will be held November 25, and the emerging plan for the Bowie-Collington planning area. The first two of the aforementioned local area master plans detail the shore line protection proposed along the Potomac River; the last three mentioned pertain to similar conservation planning in portions of the Patuxent Watershed.

I have copies of these also for inclusion in the record.

In addition, the Commission adopted a Patuxent River Watershed Development Plan pertaining to the designation and long-range development plans for the use of public park lands in Montgomery and Prince George's Counties adjoining the Patuxent River. A special task force created within the State of Maryland exemplifies the important role that intercounty and interagency coordination plays in protecting the Patuxent River Watershed. I refer you to the recent report published in 1968 by the Patuxent River Technical Task Force.

The Commission is deeply concerned with the potential problems of pollution -- both sewage and sediment -- in the Patuxent River. The preliminary plan for the South Laurel-Montpelier area, pages 29 through 33, bear directly on this subject.

Recognizing the importance of pollution from sediments, the Commission took a leadership role in the preparation of sediment control programs for both Montgomery and Prince George's Counties. These programs, now adopted, set guidelines for control measures to minimize sediment pollution in all streams in our two counties. A copy of the Sediment Control Program for Prince George's County, published in September 1968, is presented for inclusion in the record. These programs were developed in close coordination with the local soil conservation districts of both counties and, in practice, have incorporated erosion and sediment control in all new subdivision planning which comes through the Commission for final approval.

Some of the methods and measures being used are: non-critical area stabilization, critical area stabilization, temporary erosion prevention during construction, permanent vegetation recommendations, man-made diversions for selective run-off, outlet channels for storm water disposal, bench terraces, contour benches, waterway stabilization structures, bank erosion structures, stream channel construction, and sediment basins which the developer must build to regulate run-off and trap sediment.

The Commission is also engaged in a 10-year hydrology and sedimentation study financed jointly by the U. S. Geological Survey, the Washington Suburban Sanitary Commission, and the Park and Planning Commission. This program, as it progresses, will provide a better scientific basis for devising new preventive measures for erosion and sediment control.

A corollary program, sponsored by the Baltimore District, U.S. Corps of Engineers, and now administered by the Maryland State Department of Water Resources, provides for the preparation of flood plain information reports in some of our watersheds. The fifth in a series of such re-reports for the Southwest Branch of the Patuxent River has just been published and will be presented to our agency on

November 13. These reports define, in engineering terms, the limits of the 100-year flood and are an excellent guide in keeping the flood plains free from encroachment.

Community Goals. In response to recently enacted State legislation, in the creation of which this Commission played a leading role, the planning process now includes a statement of concepts, guidelines and goals for each plan. This statement must precede the actual preparation of the plan and must be endorsed by the local governing body of the county as prescribed guidelines in plan preparation. These concepts, goals and guidelines spell out a host of factors and policies, not the least of which is the important role the plan will play in the protection of natural resources.

Several years after the adoption of the Commission's General Plan in 1964, the Montgomery County Council created a Committee to Evaluate the General Plan. One of their objectives was to recommend to the local governing body as to the viability of the wedges and corridors concept. The Committee came to the conclusion that the plan was still viable and in their report proposed a number of action items, many of which bore directly on preservation of open space, protection of our watersheds and the enhancement of our natural heritage and resources.

As an example, one of the planning policies advocated was the concept of limited access sewer lines traversing low density areas. This concept is employed in the Potomac-Travilah Master Plan where, in the lower reaches, certain tributaries of the Potomac River traversing two-acre zoning density are proposed to have limited access sewers.

In Prince George's County the Community Goals Advisory Committee published on March 15, 1968, the proposed goals, purposes, and concepts for further development of Prince George's County, Maryland. Following are examples of goals directed toward the conservation of natural resources.

I have a copy of this report for inclusion in the record.

I will skip the excerpts from that report since they are included in the record.

I am struck by the resemblance of these stated goals with some of the recent problems set forth at the last winter meeting of the Interstate Commission on the Potomac River Basin. In a paper titled "Water Quality in the Potomac Estuary", by Gordon E. McCallum, U.S. Public Health Service, he had this to say:

"People want outdoor recreation close to home, and for most people, home is in the fast growing metropolitan areas They want water to swim and fish in, to ski on, to dive into, to run their boats on -- or simply to sit or walk beside. The recreational use must now be considered coexistent with industrial, municipal, and agricultural needs. This imposes upon us the responsibility of maintaining water as a safe, enjoyable and healthful environment for people.

"Only recently are we coming to realize the great differences that exist between management of estuarine and the inland fresh waters. The factors which may affect estuarine water quality are far more numerous, yet we know far less about them. All the wastes of the cities, present pollutants which research still must conquer. Yet these tidal waters and marshes are the important breeding nurseries and feeding areas for many of our most important marine food and sport fisheries. If we are to protect these critical areas from pollution -- and enjoy the great economic and recreational values they represent -- we must, through research, develop considerable new knowledge."

Open Space Development Tools. This Commission has pioneered in the procurement, enjoyment and enhancement of multi-purpose open space areas. Our planning program last year involved a large scale research project, the purpose of which was to identify all of the aspects of open space planning, many of which were heretofore unexplored, and propose ways in which these various methods could be implemented.

The result culminated this summer in a series of some 16 reports dealing with practically every segment of open space planning. Although most of the reports were not germane to the estuarine issues and problems being discussed here today many, by their very nature, would be useful in guiding land use policy in areas where shore line protection is paramount.

As an aside, I would recommend them to St. Mary's County.

On November 23 in Silver Spring the Commission is holding the first in a series of symposia, called Metrospace I, on open space development planning. I extend to each of you a personal invitation to this important meeting. We feel we have developed a tremendous background of knowledge on the subject, and this coming symposium will be the kickoff seminar for later more detailed discussions on the subject.

Watershed Management. As you have probably guessed by now, much of our work is done on a watershed basis. Entire plans have been conceived on the basis of the physical watershed and the proposals are inherent thereto. In keeping with this philosophy, we have entered into agreements with the Soil Conservation Service to plan and build small watershed impoundment areas, not only for the protection against downstream flooding but also for the recreational enhancement such lakes produce.

Our first completed project is Lake Needwood on Upper Rock Creek in Montgomery County. A second lake is under construction in that same valley. Major watershed impoundment studies are also underway in the Piscataway Creek Watershed of Prince George's County and the Great Seneca Watershed of Montgomery County. All three are administered by the Soil Conservation Service under Public Law 566, Small Watershed Management Act.

We have also taken the leadership in co-sponsoring a bi-county watershed management program with our adjoining county to the south, Charles, and will be developing, with the Soil Conservation Service, flood control and recreational impoundment areas in the Mattawoman Creek Watershed.

In conclusion I would like to say a word about the current threat to the Patuxent River. Some have said this is the last remaining "clean" river in the State of Maryland.

There might be some people in the room who would set the Wicomico ahead of that.

It certainly is unique in that it is the only major stream separating, yet close to, two major metropolitan areas which has retained much of its original beauty and charm. But it is on the threshold of extinction as a natural resource of which Marylanders can be proud. Several sewage treatment plants dot its banks from Howard to Charles County. Without tertiary treatment, some of these major sewage treatment plants cannot possibly perform their designated role; namely, keeping the river free from waste water pollutants.

That's a subsidiary role, I should have said.

The Patuxent River Technical Task Force Report, 1968, which in my opinion is one of the finest and most professional reports submitted on this subject, identifies the problem well and proposes the proper remedial measures.

Some experts have suggested that to keep the Patuxent River entirely safe from future contamination that totally all treated effluent must not exceed 75 percent of the measured assimilative capacity of the Patuxent River. No guidelines have been drawn up yet for implementation, but I think the above facts identify the seriousness of the matter.

The Lower Patuxent estuary is favored as one of the prime spawning areas for certain species of fish in

Chesapeake Bay. If the ecology of this stream and its adjoining natural habitat are upset or caused to be changed, results could be disastrous to the seafood and shellfish industries of the States of Maryland and Virginia.

Thermal pollution is another possible threat to the natural regime of the marine habitat of our estuarine areas. Industrial plants, devised to use and discharge, at high temperatures, large quantities of water, must be regulated with great care if it is evident that their actions are responsible for this form of pollution.

Another related aspect of our work that the Federal Water Pollution Control Administration should be aware of is the legislation making mandatory the preparation of a 10-year sewer and water plan for each county in the State of Maryland. One of the aspects of this plan has to do with water uses other than for domestic consumption.

We have employed the consulting firm of Harza Engineering Corporation, Chicago, Illinois, to prepare this part of the plan for us. His report, to be completed in the next few months, will make planning recommendations with regard to the recreational uses of all water areas, inland and estuarine, shore line development as it pertains to the long-range potential for water recreation, potentials for navigation and port development and the esthetic aspect of our water-oriented facilities.

Thank you very much for permitting the Maryland-National Capital Park and Planning Commission to appear and present our views.

MR. JENSEN: Thank you very much, Mr. Hewins. Do members of the panel have any comments or questions?

MR. COULTER: Mr. Hewins, in your planning activities and in your land use plans, do you show the location of sewage treatment plants and sanitary land fills and these other necessary evils of life?

MR. HEWINS: Our plans recommend locations of future sewage treatment facilities, yes. Actually, the five-year plans of the Washington Suburban Sanitary Commission are more explicit on this point, and their forthcoming ten-year plan will show for the first time a projection of ten-year needs.

On solid waste so far, our plans have reflected only present waste disposal facilities such as Montgomery County incinerator and other land fill operations in Prince George's County.

We have to share some of the responsibility for the Black and Veatch report that we, with Northern Virginia, co-sponsored and C.O.G. came in, and the three agencies shepherded that report through from beginning to end. That doesn't mean we necessarily support the recommendations of the consultant. C.O.G. has gone another step by exploring the solid waste management aspects Black and Veatch recommended, and will hopefully with their present studies be making some recommendations on that in the near future.

DR. CRONIN: With rapidly changing life in the metropolitan area, are there effective controls on future density of populations, or is suburban sanitary water supply and related problems, are these problems answered in response to decisions by people over which you have no real control? Are we always going to be chasing the problem, or is it possible to say this is the maximum density a region can and will accept and serve?

MR. HEWINS: I would personally like to see that day come when we could support your last statement. I don't think it will ever be reached, no. We are going to be chasing it, we are refining it. Zoning as we know it today is a weak tool at best. Where you have it, it can help you. Where you don't have it, you better get it.

The art of planning is rapidly becoming more scientific fortunately in providing a better base for measurement and standards of control. I think the important thing here that seems to be prevalent this morning is the understanding, broad understanding, of objectives that we all share and working toward those objectives. I don't believe we will ever be able to put a ceiling on exploding metropolitan population to the extent that Britain has, for example. We just don't operate in that kind of a Federal or State government. We appreciate the controls and their effectiveness and are trying to devise new ones that will work.

MR. JENSEN: Mr. Hewins, we will include the material which you have given us in our files, but we will not include it as a part of the verbatim record.

For those who might be interested in obtaining copies, there are several hundred pages of material, could you provide copies on request?

MR. HEWINS: For most of them, yes.

MR. JENSEN: If any of you wish to have copies of the material he gave us for the record, if you let us know, we will obtain them for you.

Our next speaker will be Mrs. Elizabeth Wallace. We guess she might want to talk about oysters.

STATEMENT OF MRS. ELIZABETH WALLACE, ON BEHALF OF THE OYSTER INSTITUTE OF NORTH AMERICA:

MRS. WALLACE: Directing Chairman, members of the Support Panel, participants, ladies and gentlemen, my name is Elizabeth Wallace. It is my privilege to represent the clam and oyster producers and dealers as the Director of their trade association, The Oyster Institute of North America. Our office -- now located in Sayville, Long Island, New York -- was here in Annapolis until our family moved to New York six years ago.

Emotionally, I am home -- to pay tribute to the efforts and advancements of those people in Maryland's several agencies that have measured up to their responsibility for establishing high water quality levels and a program for long term pollution control of Maryland's invaluable estuaries.

It will be encouraging to those of you working on the Piney Point project and of interest to everyone here that Maryland's efforts are being observed by many States. I first learned the details of the Piney Point proposal in, of all places, San Antonio, Texas, throug a member of the Department of the Interior, Bureau of Commercial Fisheries, telling of the implications for marine resources.

At the Atlantic States Marine Commission Fisheries meeting, being held now in Durham, North Carolina, it was the subject of considerable discussion as we learned from the Commissioners. The implications are being observed far and wide, and they are indeed far-reaching.

In the last few years the Chesapeake Bay has produced approximately half of the oysters in the entire country. In 1967, the Maryland section of the Bay produced 16.4 millions of pounds. This was 7 million pounds greater than the second highest producing State. Maryland is also the greatest source of soft clams in the nation and is beginning to use the hard clam resources of the seaside estuaries. Last year Maryland supplied at least 23 millions of pounds of molluscan food to the nation's tables. The forecast is for even greater production of each of these species. Thus, Maryland is an important contributor of protein harvested from her inland sea.

In providing clean waters for the citizens of Maryland there is the dividend of utilizing the shellfish resources. Maryland's citizens are most fortunate in, first, having an abundance of magnificent waters to protect for their multiple uses and, second, for public servants of vision, ability, courage and tenacity to restore and manage these water resources. Your program has, in my opinion, more thrust and imagination than that of any other State. Congratulations to each of you who have worked selflessly, effectively, and together.

Of course, there are problems, each differing in relation to location and other interacting factors. One of your dilemmas is the disposal of dredge spoil. We hear of this in New York from the Sports Fisheries because they are terrified that you will inadvertently alter the spawning grounds of their beloved striped bass -- Rock to you. This is indeed a grave responsibility.

The welfare of shellfish in dredging and dumping areas is also in danger of adverse effects if you act without knowledge of the composition of the spoil and of its chemical and physical impact on oyster and clam producing areas. We trust you will seek the technical assistance to provide answers to these and comparable problems.

Maryland's Program "Waste Acceptance Service" is an imaginative approach that leap-frogs the major difficulty of financing and gets on with the action in the most expedient, best organized and least expensive manner. Because of this precept, Maryland moves when the municipalities are ready. The plan seeks to cooperate with industries so that they need not fear being disadvantaged. Governor Agnew and the members of the General Assembly deserve credit for making the Program possible with the $129 million funding during the 1968 session. Incidentally, the molluscan industry members are also appreciative of the regulations to control vessel pollution in the Bay, passed during the same session.

For the benefit of every citizen of Maryland -- his health, his culture, his economics and his resources -- we urge Governor Agnew to continue Maryland's Pollution Acceptance Service Program, recommend its approval by the Legislative Council and shepherd it through the General Assembly with continued funding. Thus Maryland will show the way to other States who may be motivated to manage their own precious water resources. (Applause.)

MR. JENSEN: I don't know whether any agency representatives know how to respond to praise. Does anyone wish to ask Mrs. Wallace any questions or are there any comments?

Libby, do you have anything to say about thoughts on overall planning for the Chesapeake Bay, the mechanism through which that might be best done?

MRS. WALLACE: Regional planning is the only effective way to do it. I think most citizens are getting this concept quite rapidly. No man is an island, and no area is an island, and everything depends upon everything else. It is a great opportunity for all of us to work together with goodwill in giving each person credit for being as interested as every other citizen in achieving the same goals.

While I am here, it is not a local matter, a community matter, a State matter, or a Federal matter, it is a matter of all of these, each of which needs to put in the maximum of input.

I do hope we don't foul up on staking out territories and defending territories instead of getting on with the action of cleaning up our waters and keeping them that way. It is such a demanding goal for each of us that I think we just have no time for negative reactions one to the other. Isn't that right?

MR. JENSEN: Thank you, Mrs. Wallace.

Our next speaker this morning will be Mr. Walter Boardman, who represents the National Parks

Association.

STATEMENT OF MR. WALTER S. BOARDMAN, ON BEHALF OF THE NATIONAL PARKS ASSOCIATION:

MR. BOARDMAN: Mr. Chairman, members of the Panel, friends, my name is Walter S. Boardman. I am a consultant on conservation, and I am appearing here today as the representative of The National Parks Association, 1701 Eighteenth Street, N.W., Washington, D.C.

The National Parks Association is a private, non-profit, educational and scientific organization dedicated to the protection of the National Park System but also concerned with comparable natural areas elsewhere and with the protection of the natural environment generally. It is very much interested in problems of the Potomac River and its estuary. In that connection careful studies have been made and the various plans for exploitation and detrimental uses have been examined. The Association publishes the monthly National Parks Magazine which goes to all of its 39,000 members throughout the United States and abroad.

In an effort to obtain objective facts and recommendations concerning the Potomac River Estuary, the Association contracted for the services of Mr. Ellery R. Fosdick, a distinguished Consulting Engineer, to make a study and report to Mr. Anthony Wayne Smith, President and General Counsel.

Mr. Fosdick's report, "THE POTOMAC RIVER ESTUARY -- As a Supplemental Source of Municipal Water for the Washington Metropolitan Region", was published in January, 1968. It is herewith submitted to be included in the record of this hearing. Sections Nine and Ten of that report are clearly germane to the discussion today.

For the benefit of those here, I wish to quote briefly from Section Ten.

"All of these pollutants can be reduced to a satisfactory level using means now available.

--"while we may in the past have planned well in our separate compartments for a single purpose, there is now a need for consideration of all phases of the Estuary problem in the full perspective of their interrelationship. It seems that, so far, no group of planners has considered the ecological impact of their proposals on the Estuary, even when confronted with a certain threat to its natural values. What is needed is better Estuary management.

"The District of Columbia has, for a number of years, gradually been separating storm sewers from sanitary sewers so that storm waters will discharge directly into the Estuary without treatment. This does not solve the basic problem of keeping pollutants out of the Estuary, and in addition is costly.

"The cost of keeping pollution out of the Estuary will be relatively small in comparison with the increasingly adverse effects that may be otherwise expected if this is not done. Among other things, it will be less costly to take municipal water for emergency use from a clean Estuary than to construct 16 large dams and reservoirs upstream to dilute pollution and supply the water."

In support of the first quotation above, namely, "All of these pollutants can be reduced to a satisfactory level using means now available", another study by Mr. Fosdick, made for the National Parks Association, is presented herewith. It is "Report on Present

Status of a New Simple Low Cost Coal Sewage Treatment" and, as the title implies, shows that it can be done if the public and its representatives face up to the problem.

Both in the name of The National Parks Association and personally, I wish to thank you for the opportunity to present these facts about the problems of the Potomac River Estuary.

MR. JENSEN: Mr. Boardman, thank you very much. Do members of the Panel have questions?

MR. REED: I would like to ask this. You state here that storm waters should not be discharged into the estuary. What would you propose to do with them?

MR. BOARDMAN: Mr. Fosdick in his report suggests that if treatment immediately cannot be given, that there should be some reservoir setup and excess water stored there until in the normal process, it can be treated before returning it to the river.

MR. REED: Has he developed any costs on this, and how it might be financed?

MR. BOARDMAN: As I recall the report, there is no particular cost on that particular point, but I would come back to the observation that, even though substantial, it would be less than to try to clean up the river after it has once been dumped into it.

MR. REED: How do we know it would be less if we have no cost on it at all?

MR. BOARDMAN: I think it would be common sense treating a comparatively small amount of water rather than having to treat a whole river, that is obvious. Furthermore, it points out very clearly that on the basis of cost of treating sewage, that the dams would be far more costly. That we do have.

MR. JENSEN: Are there any other questions from the Panel?

MR. METZGAR: In your quote from Mr. Fosdick's report it is stated what is needed to better estuary management. In his report does he elaborate on this as far as improvement of estuarine management?

MR. BOARDMAN: I do not believe he does. However, I would say from working with the Association, National Parks Association is very strongly for regional managing, as has been touched upon here by others this morning, that the study that is approaching would seem to be along the line of having a joint effort of various agencies working together.

MR. COULTER: You make mention of a process using coal to purify sewage. Is this the process proposed by the Rand Development Corporation of Cleveland and promoted for some time by Senator Randolph?

MR. BOARDMAN: Sir, I can't answer that right offhand. The report is on file and can be studied. I don't have it offhand.

MR. JENSEN: Mr. Boardman, we will retain copies of the material you gave us in our official files. Would you be able to make additional copies available for people that might want them?

MR. BOARDMAN: If they write directly to the National Parks Association, I am sure they will be furnished.

MR. JENSEN: They might direct them to us, and we in turn will forward them to you if that would be satisfactory.

MR. BOARDMAN: To the Association, yes.

MR. JENSEN: We certainly thank you. It would be appropriate at this time to break for lunch. We would like to reconvene at about a quarter of 2. We will also make every effort to get through the balance of the statements during the afternoon. Any of you that may be concerned about the lateness of the hour, I wish to remind you the record will be held open for an additional fifteen days. If you wish to do so, you may submit a written statement which will be included in the record, or you may personally present it this afternoon as is your preference.

(Whereupon, a luncheon recess was taken.)

MR. JENSEN: Is Mr. James Wallace of the Maryland Port Authority here?

MR. WALLACE: Yes.

MR. JENSEN: We can reconvene our meeting and proceed.

STATEMENT OF MR. JAMES WALLACE, ON BEHALF OF MR. WALTER C. BOYER, DEPUTY DIRECTOR, MARYLAND PORT AUTHORITY:

MR. WALLACE: Originally I had a fifteen-page statement written by Dr. Boyer, Deputy Director of Maryland Port Authority who has been unable to attend the hearing this afternoon. In the interest of saving time, I would like to take the opportunity to read some of the excerpts of this statement and then to file the complete statement with the recorder.

The initial portion of this statement is largely a condensation of the Position Paper delivered by W. Gregory Halpin, Deputy Director, Maryland Port Authority, before the Governor's Conference on the Chesapeake Bay, Wye Institute, Maryland, September 12, 1968.

One hundred fifty miles of water link the Port of Baltimore to the Atlantic Ocean via the Virginia Capes, and one hundred twenty-five miles connect Baltimore and the Atlantic via the Delaware Capes. In both instances, the passageway from Port to ocean is the Chesapeake Bay. Thus Maryland's greatest natural asset is the key that unlocks the door to Maryland's greatest commercial asset.

It is doubtful whether there would be many, if any attending this meeting who would dispute the fact that the Bay is the State's foremost natural asset. Representing the Maryland Port Authority and the maritime interests of the Port of Baltimore, I would hope that there would also be unanimous agreement that the Port is the State's greatest commercial asset.

The urgent problem we now face is whether these two entities, Bay and Port, can continue to function and grow as compatible rather than competitive factors in the State's economic life.

More than 10,000 times each year, the waters of the Chesapeake Bay are churned by the powerful propellers of ocean-going vessels voyaging to and from the Port of Baltimore. These vessels, carrying cargoes from all corners of the world represent a maritime commerce totaling more than 40 million tons annually. The economic impact of their activity accounts for 11.8 percent of Maryland's Gross State Product of $13.4 billion. They are part of a giant complex of facilities, machines and manpower that link Maryland to the world and form the base for her major metropolitan area.

There can be no great benefit in spending excessive amounts of time belaboring the importance of the Port to the economy of the State. It will be far more fruitful to closely examine the Port's present position and attempt to analyze some of the current and future competitive factors challenging the Port. This examination may lead us to a conclusion whether the State can continue to rely on the Port as a growth industry.

At the same time, in this particular setting we should turn careful attention to the impact of maritime activities of the Bay itself. Many are increasingly disturbed over the effects of pollution and spoil disposal on the other uses and functions of the Bay, particularly as they relate to commercial fishing and recreational activitie The time is certainly pertinent to put the role of the Port in proper perspective.

The Port of Baltimore is now emerging from a post-World War II period during which its status as a leading world center for maritime commerce has been seriously threatened and challenged. It is entering a new period of growth and expansion, complicated by revolutionary, new techniques and methodology in the steamship industry.

Port business is a competitive business. This is particularly so in the North Atlantic range, which includes Baltimore. As soon as one challenge is met, another of greater proportion arises. There is the unending pressure from neighboring ports. During the period when Baltimore has spent some $50 million to $60 million on the development of facilities, New York has spent $500 million to $600 million. During the same period, Norfolk has spent somewhat less than Baltimore but is accelerating programs for development. Philadelphia is now committed to a 10-year, $100 million program.

Recognizing the need of accelerating the pace of progress, the Maryland Port Authority produced a 10-year program. The program, costing an estimated $67 million will, over the period 1967 through 1977, result in the construction of as many as eight new berths, the rehabilitation of some still obsolete berths and the acquisition of important waterfront property. The program, with full legislative approval and additional financing, is now well underway approximately 40 percent of the funds now having been committed to project work in various stages of completion.

The central planning feature of the program is to provide the Port with facilities for the handling of containerized cargo. Containerization, simply put, is the consolidation of many loose packages or articles of freight into a standard size box. The box, in turn, can be handled as a unit on a rail car, a truck and a ship. Using sophisticated and highly costly mechanical handling equipment, a containerized cargo system can reduce United States to Northern Europe travel time by as much as one-half. It can, at least in theory, reduce pilferage of cargo to zero. It can and it has revolutionized the steamship industry.

For the past year, Baltimore and Hampton Roads have been waging a very intensive skirmish to determine who will be the second major container port. As of today, Baltimore has a slight edge. This is due to the fact that facilities are sufficient at the moment and improving rapidly to handle containers and because the larger volumes of general cargo have traditionally moved through Baltimore.

The most careful analysis of the future would indicate that Baltimore has an excellent chance of maintaining and increasing its lead over Hampton Roads; provided, however, that the Chesapeake and Delaware Canal project is brought to a rapid conclusion.

It is easy to see that Baltimore will not attract container cargo that is forced to sail down the Atlantic Coast bypassing the front door of its competiton at Hampton Roads and steam an additional 150 miles up the Chesapeake Bay facing a similar return trip. The disadvantage of this type voyage is that it places Baltimore 300 miles further away than Hampton Roads from European ports and adds a minimum of 20 hours sailing time. This additional distance and time cannot be tolerated under the stress of tight container schedules.

Therefore, Baltimore port interests are exerting every effort to speed the completion of the C&D Canal project which is now scheduled for 1971. The Canal, deepened and widened, with bridges raised and dangerous bends eliminated, will be a safe and speedy access for the newer, larger container vessels. The Canal will actually place Baltimore several miles closer to north European ports than Hampton Roads.

The importance of the C&D Canal project brings us to a crucial point in these discussions. But unless the Port has sufficient access, it will become an isolated waterfront monument to frustrated public spending.

The past 10 years has seen two major projects designed to improve access to the Port. The first of these was the longsought deepening of channels serving Baltimore Harbor from 39 feet to 42 feet. The other was the project still underway -- the C&D Canal. The study into determining the economic feasibility of deepening the channel beyond 42 feet is now underway. The actual work on the 45-foot channel is taking place at the competitive ports of Hampton Roads.

Unfortunately, material dredged from the channel areas at Baltimore is spoil rather than fill -- a liability rather than an asset. As channels have been deepened, new channels dredged and annual maintenance dredging increased, the capabilities of such spoil disposal areas as the Kent Island Dump have reached their maximum limitations. Indeed, were it not for civic-minded contributions by Kennecott Copper and the Baltimore & Ohio Railroad in allowing spoil to be placed in front of their properties in the Hawkins Point area, the 42-foot channel might still be in the planning stage rather than a reality.

In recent months the Authority, the Corps of Engineers, and officials of many State agencies have been studying the problem of where to dispose of spoil from present and future projects. The matter is still unresolved.

I think it should be clearly understood that there are some limitations to the scope of the utilization of the Bay by the port industry. Much has been said lately about the super-tanker or super-carrier. These are vessels which are now being built in the dimensions of 300,000 dead weight tons. The million-ton tanker has now been declared technically feasible. These mammoth ships require extraordinarily deep channels well beyond 60 feet or 70 feet.

It is virtually inconceivable that the Chesapeake Bay will ever see such a ship. The bridge-tunnel connecting the shores of Virginia acts as a picket line defense against such vessels entering the Bay. Allowing for a cut in the protective cover over the tunnel portion of this facility, the maximum channel depth would be 60 feet, resulting in a maximum allowable draft of 55 feet entering the Bay through the Virginia Capes. Further, economics would rule against dredging the channels to such a depth.

To the north, the C&D Canal, dredged to accommodate ships of 55-foot draft, would require additional Federal expenditures of close to $1 billion. No one is prepared to predict that such monies would ever become available. Further, world-wide maritime planning calls for such super-tankers to load and discharge off-shore with possibly one or two exceptions -- namely, Rotterdam, which can provide at least 65 feet, and a yet-developed harbor area on the Maine coast of the United States where 90 feet of water has been discovered.

It now appears that the natural and economic barriers will limit use of the Bay to vessels of 200,000 dead weight tons.

For Baltimore, however, it is critical that sufficient draft be provided so that the newest of general cargo ships, whether they be container or more traditional general cargo ships, can call at the Port. Further, sufficient draft must be provided for the largest possible ore ships that can call at Sparrows Point, Bethlehem Steel and at the ore and grain docks. It is imperative, therefore, that a long-range solution be found to the problem of disposing of spoil in the Chesapeake Bay area. The areas must be developed in locations that will maintain dredging costs within economic reason. It might be noted that non-maritime projects such as the second harbor tunnel are directly affected by dredging costs.

Glib solutions such as "carrying the spoil to the ocean" cannot be accepted without accepting the consequences of such a solution. Spoil can be disposed of in the Kent Island Dump presently at a cost of about $1.50 per cubic yard. Disposal in the ocean would raise this cost to about $6 per cubic yard. To impose such a condition on State public works can result in burdening the taxpayer with excessively high costs. However, such costs can result in the virtual elimination of Federal projects, and privately financed industrial development in the Port of Baltimore. This is indeed a dim prospect, in a period that is growing ever more competitive.

However, we at the Authority are fully convinced that the Port's future prosperity need not be gained at the expense of any other facet of State activities, including and particularly those activities centering around the Chesapeake Bay.

We can have cargo and crabs. We can have oilers and oysters.

We can use the Chesapeake Bay as a passageway for world commerce and as a great recreational resource. Indeed, we must do both of these things, and if the Port cannot grow and expand, the future potential for all other activities in the State will proportionately shrink.

Having cited a most serious problem faced by the Port, perhaps a brighter side may be presented by discussing the Maryland Port Authority's program to control pollution in the Patapsco River.

Through agreement with the City of Baltimore, the Maryland Port Authority carries out certain functions, obligations and requirements established by Baltimore City ordinances pertaining to the control of pollution caused by oil products such as oil, naptha, benzene and kerosene, along with material, refuse or matter of any kind which may fall or be washed into the waters of Baltimore Harbor. This includes an obligation and authority to remove such deposits from the harbor waters. The Baltimore City ordinances, which now have the status of regulations of the Maryland Port Authority, make no distinction between pollution from a shore installation and pollution from a ship. This is at variance with the present State and Federal laws controlling oil pollution. We would like to see equal treatment given, as it is in Baltimore, to the control of oil pollution from any source, whether it be on shore installation or a ship installation.

The Maryland Port Authority has been and is now actively engaged in removing floating debris and oil pollution from the waters of Baltimore Harbor. As part of the recovery system, the Maryland Port Authority recently received as a donation some 3,000 feet of oil retaining boom, along with a supply of chemical dispersants, purchased on the cooperative and coordinated efforts of 13 local oil companies. This equipment cost these oil companies in excess of $21,000.

We own and operate a self-propelled barge designed and equipped to remove oil from the surface of the water by the rotary drum process and to store the recovered oil in the tanks of that vessel. This barge, further, has a capability of pumping oil from its cargo tanks into supplemental storage tanks, if and when the additional storage capacity is needed. This vessel, which was acquired in 1962, at a cost in excess of $80,000, has proven most effective in removing oil pollution from the waters of Baltimore Harbor, but it cannot be effectively used in seas higher than two feet, nor will it efficiently remove gasoline or kerosene from the surface of the water.

The Maryland Port Authority also owns and operates a $25,000 debris recovery vessel equipped with a hydraulically operated front end loader for removing solid floating debris. By strewing straw or sawdust on an oil spill, this vessel can also be used in oil recovery operations in calm waters.

It is the practice of the Maryland Port Authority to physically remove polluting material from the water -- the chemical dispersants are only used in the final cleanup stages of an oil recovery operation. Our facilities, coupled with the debris recovery vessel of the Corps of Engineers, give Baltimore a harbor cleanup capability equal to, or better than, that of any port in the United States.

It must be clearly understood that the oil and debris recovery facilities in Baltimore were designed for the work in this harbor where they have been most satisfactory. However, our facilities cannot be effectively used in the waters of Chesapeake Bay except in ideal weather conditions, and they could not be used in any open sea operation.

During the past five years, the Maryland

Port Authority has investigated 41 oil spills; 26 of which were caused by shore installations and 15 of which were caused by vessels. Of the 41 investigated spills, our oil skimmer was activated and was successful in removing oil from the water in 19 cases. In the 22 cases where the skimmer was not activated, it was because the spill was not extensive enough to warrant the deployment of our forces or because it could not be handled by our equipment, for example, a gasoline or kerosene spill.

Of the 19 instances where the oil recovery barge was activated, we were able to determine the identity of the vessel or shore installation which caused the spill in 11 cases. The owner or operator of the vessel or shore installation responsible for that spill was then billed for cleanup services. In no instances has any owner or operator yet failed to pay our $100 an hour charge for our oil cleanup service. Between 1963 and 1968 the Maryland Port Authority has collected a total of $11,742 for its oil recovery work.

We estimate that approximately 65 percent of th floating pollution, oil and debris, on the waters of

Baltimore Harbor is introduced through the City's storm drainage system. We hope to be able to develop suitable traps around the outlets of the storm drains to concentrate oil and debris for our cleanup facilities and prevent this debris from entering the harbor waters. This is a research and development problem where we will probably look to the FWPCA for financial assistance.

Perhaps the ultimate objectives of the program just outlined can be best illustrated by citing some of the recommendations of the Advisory Committee on Bay Pollution which are:

1. Changes in Maryland Laws. It is the recommendation of the Committee that the laws of Maryland pertaining to oil pollution give equal treatment to ship and shore installations. It was evident during the study that shore installations have caused many more pollution incidents than ship installations.

2. Violation, Detection and Enforcement. The Committee found that all Maryland laws pertaining to pollution either from oil or sewage, were being violated. Although the apprehension of culprits is often difficult,

many more convictions could be obtained by increasing the level of pollution detection. Pollution detection could be increased by self-monitoring pollution detectors which our current technology can produce, and/or by the increase of human observers in the pollution field.

The violation-detection-enforcement should concentrate on this: 1. sewage pollution; 2. shore oil installation pollution, and 3. ship pollution -- in that listed order.

3. Waste Disposal. A potentially major source of Bay pollution exists in the disposal of waste petroleum products from retail gasoline and automobile service stations. Various waste oil disposal facilities and services are available to the retailing oil industry. Publication and promotion of these facilities should be made known to the retailing oil industry. The licensing of collectors of waste oil should be undertaken by legislation. The efficiency of waste oil traps used in retail oil service stations should be specified by State law and the inspection of oil traps should be undertaken by a State agency. Final disposal of waste oil should be under

the cognizance of a State agency and should be controlled, otherwise the pollution problem may just be passed from one person to another. The oil industry should be encouraged to investigate the incineration of waste oil products. This potential solution to waste oil disposal, however, is fraught with potential air pollution problems.

The investigation of a central marine waste oil collection system under the authority of the Port of Baltimore should be undertaken. In general, waste disposal should be made easy for the homeowner, the industrialist, the shipowner and the general public. Where wastebaskets are in evidence, wastepaper is not.

4. Major Oil Spill Emergency Planning. The Department of Water Resources is coordinating oil spill emergency planning with all State agencies, including the Marine Police and the State Police. Publication of a concrete plan should be given wide distribution to the oil industry, the marine industry and the general public. The Department of Water Resources should recommend to the Legislature an appropriation to place oil-containing booms and oil cleanup machinery at several locations

within the Bay. The only cleanup machinery existing at present is at the Port of Baltimore.

5. Bay Management. Many, many agencies of the State of Maryland and of the Federal Government have cognizance over some portion of Chesapeake Bay affairs, pollution, water resources, recreation and transportation. The efforts seem to be uncoordinated and at times, at direct cross-purposes from one agency to another. It is the opinion of several members of the Committee that the Bay should be managed from one central agency and should be treated as a system for such management. This agency could be responsible for the Bay as an entity and we are sure, secure Federal and State funds for such management. Such a management could bring to bear and could coordinate all of the various State and Federal activities which pertain to the Bay.

MR. METZGAR: Is the study available where you cite the figure for $1.50 per cubic yard for Kent Island versus $6 a cubic yard for ocean disposal?

MR. WALLACE: They are not available at this time for the public, but I can make sure these are available to you.

MR. JENSEN: Do you have any specific suggestion as to the type of studies which should be undertaken to try to keep with this problem of increased cost of spoil disposal? Would you like to submit any recommendations of that kind for inclusion in the record?

MR. WALLACE: Mr. Jensen, this is a question that I would prefer that Dr. Boyer answer, in that I am really just reading his statement.

MR. JENSEN: The record will be held open for two weeks, and if you wish to submit anything additional on this, you can.

MR. WALLACE: All right, sir.

MR. PATE: I recently heard someone say there were no plans to handle the super-tankers that are on the drawing board, the 1-million ton jobs, in the Chesapeake Bay.

What plans exist to handle what shipments of what size now?

MR. WALLACE: The maximum controlling depth of the Chesapeake Bay and Baltimore channels is approximately 55 feet. These monstrous super-tankers now are getting into the 300,000-ton category. This means that the maximum super-tanker or super-cargo ship that can be handled or accommodated within the Chesapeake Bay and Baltimore Harbor area would be in the neighborhood of 200,000 tons.

This would be, in other words, a draft of about 55 feet maximum, and we are having difficulties right now in dredging the Baltimore channels to a depth beyond 42 feet at which they are right now because of this dredged material disposal area problem we have.

MR. PATE: Do you consider this to be a serious restraint on the economic competitive situation of the Port of Baltimore in the future?

MR. WALLACE: Absolutely. I think that we can look at Chesapeake Bay as the greatest natural thing that the State of Maryland has. However, the Port of Baltimore, on the other hand, would be the greatest economic factor in the State of Maryland. That is the greatest single economic factor for the State of Maryland.

MR. PATE: What I am asking is, it seems the

Chesapeake Bay cannot go beyond 55 feet controlling depth. Does this mean the Port of Baltimore is going to become noncompetitive and become something of a second-rate port?

MR. WALLACE: No, sir. In fact, there are only two ports that have water depths in excess of that really, and this would be the Port of Antwerp and a new area on the coast of Maine that has been recently found to have depths up to 90 feet. This does not mean that other ports such as Baltimore, Hampton Roads, Philadelphia, New York, for that matter, would be economically depressed as a result.

The thing of the future is for these large 300,000-ton ships to moor at sea and have smaller ships come alongside, and the cargo will then be loaded onto these smaller ships which can then transit the Chesapeake Bay up to the Port of Baltimore and likewise to these other ports.

MR. PATE: Thank you.

MR. GOLDSBERRY: You mentioned something about oil disposal and a study. This study you referred to, was this spoil disposal study, the recommendations or the study, carried out by the Ad Hoc Committee for Spoil Disposal in the Kent Island Deep? Have these recommendations been released, or will they be released?

MR. WALLACE: The recommendations of the Ad Hoc Committee were presented to the Commission on Submerged Lands, and in fact it was September. This forthcoming week the private industries will be heard by the Commission on Submerged Lands. After these private industries have been heard, then the Commission on Submerged Lands will have a meeting with the Board of Public Works and make their recommendation.

DR. CRONIN: You indicated the importance of long-range disposal of the spoil disposal problem. It seems to me the Kent Island site and Tilghman's Island site and all deep areas in the upper half of Chesapeake Bay can only be a stopgap toward that long-range problem. They cannot contain the kind of quantities predicted for the next ten years.

Have ultimate plans seriously been attempted and developed and evaluated? We know what the ultimate plan is. One of the alternatives is to go into that ultimate now and save these deep areas which are highly valuable for other resources.

MR. WALLACE: No serious work has been done to this end, I am afraid to say, Doctor. There are considerations that are under study at the present time but are not at that serious stage yet.

The possibility of developing an island, if you are acquainted with the Hampton Roads area, it is basically an island into which dredged material may be disposed. It is a three-sided extension of a peninsula. They do charge a user's fee of 50 cents in that area.

The cost of such a thing in today's high cost of living would be approximately $13 million, and again I am throwing another figure which the public has no access to at the present time. We have determined from our studies that this would cost more than disposing at the $1.50 rate at the Kent Island Dump now.

DR. CRONIN: There was a study some years ago about a Wallace Commission, a different Wallace, for the Board of Natural Resources. One of the recommendations, never implemented, was to develop receiving areas around Miller's and Hart Islands in a fast land creation program. There were some real difficulties because of kind of material,and there were complications. At least it would prevent filling of deep areas in the Bay, it would eventually have some other values. Has this been considered, analyzed in competitive terms recently?

MR. WALLACE: Not to my knowledge, Doctor. I think that I will check into this, however, and if the record is going to be open for three weeks, perhaps meantime I may provide an answer.

MR. JENSEN: Further questions?

MR. METZGAR: Question on the differential, the present dredging of 42 feet, also talking about the maximum of 55. Has there been any consideration, looking at differential in economics to the State, toward gross national product, on the 13-foot differential? Do you have figures to justify the additional part going to 55 feet?

MR. WALLACE: These figures are not at the present time available. The Corps of Engineers, however, is conducting a study to determine to what economical depth they can go. Of course, a deciding factor will be the decision of the Board of Public Works after being heard by the Commission on Submerged Lands, as to where the next dredged material disposal area will be.

The Corps of Engineers' report will be completed in the draft form in December. However, the final form will be due in January.

MR. METZGAR: Of next year?

MR. WALLACE: Yes, sir.

MR. JENSEN: Thank you very much, Mr. Wallace.

Our next speaker, Mr. J. Frank Raley, who represents the Tri-County Council for Southern Maryland.

STATEMENT OF MR. J. FRANK RALEY, ON BEHALF OF THE TRI-COUNTY COUNCIL FOR SOUTHERN MARYLAND:

MR. RALEY: I have no prepared text. I have some notes.

Mr. Chairman, members of the Panel, I think this kind of occasion is good that we can get together and kind of talk over what I consider probably one of the greatest problems we face here in our country. That's really the livability of our area.

I really think it is well that I have noticed in the last few years, I think this is well, we have got many orginations, down home we have a new one called Save Our Rivers, and some of the older conservation organizations, which indicates to me an interest in the people in resource management.

I use that word "management". I don't know whether we all have the same interpretation of that word. I, I think, like all here, am against pollution. I don't think in our country we can tolerate pollution, and I don't believe we should.

But on the other hand, I also recognize that people have to live. We got to have oil to heat people's homes. We got to have jobs. We have got to have the normal things of what we have today, a very complex living. We have a lot of people.

So I always have felt that, though we cannot tolerate pollution, there has to be some balanced management of our resources. That would include, Mr. Chairman, multiple use of our resources, of our waterways. This, of course, is where we get into some controversy. Usually it is one dragon rears up its head, must be slain, it doesn't fit into the whole picture. Go back to it, I certainly believe we need recreation, and we need to have scenic beauty, but we also need jobs. We also need taxes. There is and there must be found a place for these things to exist or coexist to be compatible with industry.

I also like to point out that the resources we are talking about, the waterway resources, are not just owned by one specific group or another. They are owned by all the people. They should be used and managed skillfully so that all the people can have benefits.

I believe somewhere along the line, I am no technician, but I do believe somewhere along the line, with all the brains in this country, somebody can get together and somehow we can create a political structure that will allow us to have this kind of thing, this kind of management, this kind of multiple use.

I am from St. Mary's County. It is a little county. It has been in the news, and I think it has been up here. It is over and dead and gone and really ought not be brought up, but it does point up some of the problems. When you start considering anything, you know, we have a lot of trouble down there to make ends meet, to be able to educate our people, be able to provide the normal services necessary for any progressive community. We have to try to find money to do that. It is not easy sometimes on the tax base they have in a lot of these small counties.

Another thing that has occurred to me. We have had a lot of problems in the cities. Maybe this doesn't strike home, but I certainly think it ought to. We have had a lot of problems in the city. Talking about all the congestion, talking about the riots, also unskilled people there. Why are they all there? They have all gone there, trying to look for some kind of employment, for some kind of better living.

All of the people of the nation have been congregating into the cities and leaving the country. Would it be good sense that if we could disperse our industry throughout the country so that we wouldn't have these great problems that are congregating and almost not solvable in such large areas as have been developing? I think this is a dimension that ought to be considered in our approach to resource management.

Some time ago I made a talk, I would like to reiterate it today. It might give, at least in better words than I have just been giving, a picture of what I am really talking about. I said then I respectfully hope that our thinking will be oriented to doing the things, developing the rivers, preserving this river, not just for the sake of the river, or because the river is sacred in itself, but that these things will be done to serve the people, the full needs of our people, cultural, recreational and economic.

In St. Mary's County we are particularly interested in seafood production, oysters, crabs, fish. We know if the rivers remain clean and its full potential is managed skillfully, this will serve our purpose down there. But seafood production is but one phase of many in any river's potential development. Hopefully, future planning will envision the development of all the purposes and needs.

We were talking at that time about the Potomac River, and that's what I was speaking about, but I certainly think it is apropos here today. At the time they had placed great emphasis on scenic beauty, but I reminded them that day as far as scenic beauty is, our obligation must extend beyond the serving of people's needs by also providing jobs and income security.

I said that day, and I guess I will say it again today, taking the risk of being labeled a heretic or at least being misunderstood, I point out the consideration must be made also for industrial and commercial use, too. Somehow, this must be fitted into the picture of balanced use for it serves the needs of people, products for necessary living, jobs for income, and finally without some provisions being made for these kinds of purposes, any kind of lofty aims we have I don't think can ever be obtained.

We cannot ignore the profit incentive, for otherwise we do so at the peril of failure and defeat. Man needs recreation, man needs scenic beauty, man needs historical heritage, but man also needs bread.

Getting around to this multiple use or balanced use or skillful management, that is easy to talk about, but it is pretty hard to get done. That is the second part I would like to touch on here today.

Just how are we going to manage this? I was in the Legislature, and I think our resources management of both State and Federal government is duplicating each other. We are not sure of who is boss of what. We are not sure of where authority extends. When you really stop to think about it, suppose we were to say we have got some time-honored tools we use, zoning. Zoning is administered in a very fragmented way. Down in some counties we don't have zoning. I don't know if we have zoning in Northumberland County or not. I doubt it.

How are you going to use the tool of zoning unless you get all counties to have it as far as preventing and using and skillfully managing use of water resources, how are you going to use the tool of zoning unless all counties and all sections in the region have it?

There is one alternative. I don't want to be the politician that represents this. That is Federal zoning. If you think people would like that, just try it out on them. They are not going to want some bureaucrat far off telling them what to do down in St. Mary's County or Northumberland County or probably any other county. I don't know how else you might do it if you are going to have an overall goal with overall policy and overall administration of using our resources properly. We can put in zoning down in St. Mary's County. I hope we will. I think we will. I have done what I could to get it done.

Up in Charles County right now they have got zoning, but they are building a big power plant, and some people say that it is bad. It looks bad. I don't know whether it is bad. Those things are happening.

So maybe we ought to take a look, maybe these learned gentlemen here will look at how we can get down to some kind of structure for management.

There is another way possibly, which is to use compacts. We get into compacts. I was in the Legislature. Every time a compact came up, they say it is all right to have a compact as long as it didn't bind the State to do anything. So I don't know as I have a lot of hope for compacts.

I really don't know the answer. I do believe this. I believe we have to make a commitment at this time, now, to begin to find some answers. I believe this is one of the most important problems we have. I think most people would agree with a balanced use of our water resources. I think most people agree it is very difficult to manage it.

I thought the new Constitution that they proposed here in Maryland would have gone far to coordinate the activities of resource management, but the people didn't think so. They voted it down. This is another, maybe thev didn't know it, maybe they didn't realize it did contain this kind of thing, maybe it can be done.

I might give some advice to these organizations that are concerned with this kind of thing. You can't run around forever and keep putting out brush fires. You will have to build some rational kind of management program, some rational kind of management organization.

Maybe that's where we ought to get down and do some research of how our State, our local governments, our Federal government can coordinate an orderly coordinated rational program for management of our resources.

One other thing. I think somehow I want to get this point out, too. We have to face and think about this. I mentioned Federal zoning a while ago. I think really there is a reaction in the country today against "Papa knows best, big brother got us someplace else making all decisions". But I think we have to consider that as some kind of way of feeding an input into solving this problem.

When we do, I don't know how it would be done, when we do, I think we have to make the process also so the people down below can also feed into it, that they also can have some control. Maybe there would be some acceptance when the people can feel they do have some control, and they are doing this on a broad basis.

Really, I haven't told you very much today in my few minutes here. I really don't know any answers except I do believe we ought to use our resources for multiple uses. I think we have to. I don't think we have any choice. How we do it, how we can do it rationally, how we can do it to meet the long-term needs, how we can have recreation, how we can have scenic beauty, how we can have clean waters and at the same time have compatible industry, is a most difficult question.

I believe this is what we really face. I would hope I could at least bring this to your attention, you gentlemen here, I think this is a very important question that is facing our country today.

Thank you very much. (Applause.)

MR. JENSEN: Mr. Raley, are you familiar with the San Francisco Bay Conservation and Development Commission?

MR. RALEY: No, sir.

MR. JENSEN: This is a commission that was established by the State Legislature to try to do some of the things you are talking about in at least one part of California. I am wondering about the application perhaps of such a commission for Chesapeake Bay. It is a commission made up of representatives of the counties, of the two Houses of the State Legislature, of the interested State agencies, and has relatively broad powers, though it is of a temporary life.

MR. RALEY: This might be some kind of approach to it. I can recall some, I guess I have some bad moments or areas in which I have had so much difficulty, but I recall something on the Potomac River Compact. I introduced a bill that abrogated the compact of Maryland and Virginia, they set up a compact for joint management.

I tell you down our way they all were against it. They almost beat it. Put it on referendum, almost beat it. It seemed so rational, it worked out very well. Everybody is quite happy with it, but to get that thing through was a superhuman job.

When you get into this whole area which involves everything, it is very, very difficult, I think, to put these things together. That's just my recollection of that one area in this State.

MR. JENSEN: My impression is, you said this is something that has to be done, going to be almost impossible to do. Are you suggesting then that the State, rather than the Federal government, should take the first crack at doing this?

MR. RALEY: I would think so. I wish the States would get up off their butts some and start moving ahead, being innovative. I think people would accept it better.

DR. CRONIN: What do you think would happen if the Federal government passed legislation dealing with Chesapeake Bay which said that if the States don't create effective interstate agencies to deal with navigation, waste disposal, and fisheries problem in Chesapeake Bay within five years, the Federal government will establish such authority as a Federal agency? What do you think would happen?

MR. RALEY: The Eastern Shore might secede from the Union. (Laughter.) That's an approach, Doctor, and maybe it would be the stick that would push people to doing it. I would like to see it come the other way. I would like to see us do it and see us involved with people in developing a plan on a broad basis where the people themselves had fed the input into it. I think we can even make a plan that would be better and be far more acceptable. That's my thinking.

MR. PATE: Senator, do you see the organization you represent here today, Tri-County Council For Southern Maryland, as a vehicle perhaps to work in this direction, perhaps with powers, or is it going to take more time to get into the arena?

MR. RALEY: Senator Power, the Chairman, just recently appointed a committee to look at this. It won't be just confined to the people on the Council but to members living in the three counties to look at this. He appointed me Chairman. We haven't gotten the committee together and haven't done anything. We are going to look at it. As you know, we have no power. All we can do is try to be creative and present the ideas and to get people to look at it in a rational manner.

MR. PATE: By that do you mean regional planning?

MR. RALEY: I don't know what we might do, but certainly some sort of regional planning.

MR. PATE: Senator, you mentioned the Steuart proposal.

MR. RALEY: I don't like to talk about it any more, but that's all right.

MR. PATE: I don't want to be the first to prolong this, but since you have made yourself available and since you were deeply involved in the local consideration of this proposal, I would like to ask you whether you agree with the views presented here earlier as to the immediacy and degree of the pollution threat this proposal may have posed for your area.

MR. RALEY: First I have to say, Mr. Pate, I wasn't here to hear whatever was said except right at the latter part when somebody talked about it. I can't comment because I don't know what they said.

I believe this. I believe from what information I have that it is technically possible to build a plant that neither pollutes air nor water to any significant amount.

MR. PATE: Thank you.

MR. JENSEN: Are there other questions? We certainly thank you, Senator.

Our next speaker will be Mr. John Brink, District of Columbia Department of Public Health. We should have had him long ago. He is co-Chairman. We are getting him on this afternoon, finally.

STATEMENT OF MR. JOHN V. BRINK, ON BEHALF OF THE DISTRICT OF COLUMBIA DEPARTMENT OF PUBLIC HEALTH:

MR. BRINK: Mr. Chairman, I am pleased to present on behalf of the District of Columbia its views on the management problems of the Potomac River Estuary and to discuss with you actions and plans to solve some of these problems. Assisting me today are members of my staff and staff of the D.C. Department of Public Health.

The Department of Public Health is the Water Pollution Control Agency for the District and the Department of Sanitary Engineering is the Public Works Agency for waste disposal, both liquid and solid. These two Agencies have major responsibilities for the maintenance of acceptable water quality in the Potomac River Estuary. We consider all of the Potomac waters affected by the ebb and flow of the tide to be estuarine water. Which is to say that the upper limits of the Potomac Estuary reaches to Chain Bridge and includes all of the Anacostia River within the District of Columbia.

The District water quality standards have been approved with some exceptions by the Secretary of Interior and are now Federal standards. These standards adopted after public hearing identify the present and future uses of our surface waters and set the water quality criteria necessary to achieve such use. Detailed plans covering the implementation and enforcement of the standards over the next five years have been developed.

In order that we may eventually provide the proper treatment and disposal of our wastes in the Potomac Estuary, it is necessary that we first understand the estuary. Since our knowledge and understanding of the inter-reactions of the estuary are limited, the Department of Sanitary Engineering jointly with the Maryland Department of Public Health contracted in May 1964 with an eminent group of consultants for a report on the study needs of the Potomac Estuary.

The report, entitled "A Research Program for the Potomac River" and submitted in November 1965 presented a plan for a scientific research of the Potomac Estuary designed to provide increased knowledge of the behavior of the estuary and to make possible reasonably reliable predictions of water quality and future uses of the Potomac River.

I shall not attempt to summarize this 150-page document at this time except to report that it recommends that scientific studies be undertaken of the physical circulation, sediment characteristics and disposition, and biology and ecology with heavy emphasis on the latter. It was estimated at the time that the total cost of an adequate program as recommended would be in the range of $325,000 to $650,000 per year over a period of two to five years. This is a rather significant expenditure. However, when one views the total estimated cost of treatment facilities in the years ahead, it appears to be a reasonable price for information so vital to the future of the estuary.

Obviously, the District of Columbia would not be the sole beneficiary of such a study. There is the Potomac River" and submitted in November 1965 presented a plan for a scientific research of the Potomac Estuary designed to provide increased knowledge of the behavior of the estuary and to make possible reasonably reliable predictions of water quality and future uses of the Potomac River.

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Obviously, the District of Columbia would not be the sole beneficiary of such a study. There is national as well as State interest in the determination of how estuaries react. As a result, the District has been attempting to find suitable financing for the project. One of the proposals was that the study be undertaken by the Federal Water Pollution Control Administration as part of its Comprehensive Study of the Chesapeake Bay.

A considerable portion of the research recommended in the report has been completed by the Federal Water Pollution Control Administration through its Chesapeake Bay study. The principal remaining tasks are to measure that research against the report's recommendations, finish the recommended studies, compile the results and interpretations and recommendations into a single report which would then be made available to all Washington metropolitan jurisdictions and to those jurisdictions downstream to the Bay.

Supplementary to future research on the estuary are our current waste treatment research programs which may have long reaching beneficial effects. Now under way at the Water Pollution Control Plant of the District are investigations into, one, advanced waste treatment processes in cooperation with the Federal Water Pollution Control Administration, and two, in-plant improvements in existing treatment processes. To assist the latter, the Department of Sanitary Engineering has retained nationally-known engineers to review waste water treatment processes in the light of water quality requirements under the new standards.

We are encouraged by the efforts being made here and nationwide to provide the scientific base necessary to make proper decisions for improving the treatment of sewage. Nevertheless, we are concerned that the deadlines established for the completion of the implementation program contained in the water quality standards may require that municipalities construct advanced treatment facilities before answers are obtained on the interreactions of the receiving estuary.

We are pleased to note the development of mathematical models and the proposed construction of the Corps of Engineers' physical model of the Chesapeake Bay, both of which will give us a better understanding of the solutions to problems which face us and which, together with research, help us avoid large capital expenditures in facilities prior to having a firm basis for their design. We support these efforts and call attention to the necessity for adequate verification efforts to constantly refine the models and minimize the assumptions that must be made.

The problem of sludge disposal from waste water treatment facilities is already serious and will become more critical as the degree of treatment increases. The disposal of sewage sludge at sea must be considered as a possibility because of the growing intensity of this disposal problem for the large metropolitan centers along the Atlantic Seaboard and its estuaries.

We are cooperating with the Bechtel Corporation which has a contract with FWPCA to study and report on the feasibility of ocean disposal of sludge produced in the Baltimore-Washington area. It is our understanding that the firm will focus on the engineering aspects and will consider only in a general manner the environmental implications of this method of disposal. We would urge a thorough look at the possibilities of the ocean water accepting such wastes without material damage.

The greatly increasing volumes of solid wastes and the pressures to control air pollution may result in greater use of sanitary landfills in the future. This, combined with the need for increased recreational facilities, will focus attention on the possibilities of using undeveloped lands adjacent to the Bay and estuaries as sanitary landfills and eventual development as recreational areas.

While some research has been done on this subject, more specific data is needed on the impact, if any, of such developments on surface and ground water. In weighing possible solutions for the disposal of solid wastes, consideration should also be given to the acceptability of the disposal of such materials at sea.

The Potomac estuary is a most valuable natural resource and one that is being subjected to increasing pressures from expanding population in our metropolitan areas. In order that its resources be conserved for the optimum use of all, it is necessary that a means be found for future comprehensive management of the Potomac River.

The draft of a Federal-State compact now reaching final form provides for the establishment of an organization which would administer these resources, including preservation, study, and development. Such a compact organization would, in our opinion, be the best mechanism for implementing the management system which we eventually must have for the Potomac and its estuary.

Whether such an organization is necessarily the most desirable one for the larger counterparts of estuaries, such as the Chesapeake Bay, may be questionable. In commenting on this aspect and in closing this statement, I would like to quote from my comments to Mr. Eugene Jensen, dated October 7, 1968, on a paper by Dr. Fred Singer, entitled "The Federal Interest in Estuaries", which he presented before the Oyster Institute of North America on July 15, 1968:

"I feel that in the case of the Potomac River and estuary, as distinguished from its larger counterpart, the Chesapeake Bay, a Federal-State arrangement is desirable, particularly in view of the special

Federal relationships to the Potomac. Nevertheless, recognizing that a proper organization for management in one instance is not necessarily good in another, and acknowledging that the object of Dr. Singer's remarks probably was the larger counterpart of estuaries, the coastal bays -- for example, the Chesapeake -- I can see the logic of his concept that management of these waters by the bordering States without direct Federal participation could be preferable arrangement."

MR. JENSEN: Are there any questions by the Panel? Mr. Coulter, do you regard this statement as essentially compatible with your earlier statement?

MR. COULTER: You are asking the Panel questions. No.

MR. JENSEN: Would you for the record add a few words about the proposed Potomac River fill in the vicinity of Blue Plains and the problems or questions, rather, that this raises?

MR. BRINK: I brought along staff for that kind of problem. Would Mr. Reed like to comment on that?

MR. REED: I can give you the situation.

Quite obviously, if you are going to build major treatment facilities, you must have space on which to build. The District of Columbia does not have adequate space at its present water pollution control plant site. So a proposal has been made to put a bulkhead and fill in an area which would give it sufficient space for the expansion that must be made.

In this consideration is the removal of a presence, it is called island, but many times it is awash and is really an obstruction in the river, and move it inside a dike. This would serve two purposes. It would improve the flood characteristics or removal of floodwater characteristics in the river itself and also create t land necessary to construct the treatment facility. This presently is under consideration by the Federal government which must give permission for such things and specifically has been referred to the Department of the Interior for their comments and agreement.

MR. JENSEN: Thank you.

MR. SILBERMANN: I understand from a recent message that the District of Columbia will be holding a public hearing on revised water quality standards.

MR. BRINK: That's right.

MR. SILBERMANN: Would you indicate generally what the revisions involve?

MR. BRINK: Yes, they are on undissolved oxygen, bacterial content and temperature. They do not give us any problems. Actually we think we have it pretty well covered now, but the only one worrying us now is the one on temperature.

To give an example, we specified in a certain section of the river there would not be less than four parts per million dissolved oxygen. FWPCA wants us to add a statement that in addition it will average five parts per million of dissolved oxygen. I don't know how in common sense you can have a minimum four without averaging at least five. This is one of the things.

We have a criterion for recreational waters bacteria, a new one for us, a sort of surprise, picked a number out of the hat, told us this is what they want for recreational waters. We will propose this.

The temperature criterion is the one being asked of all States. This is that there be no more than a maximum of 90 degrees rise in water temperatures and that there be no more than a differential of 5 degrees. This is going to cause us some problems on the Anacostia River where there is practically no flow in the summertime and a large power plant there.

MR. SILBERMANN: The hearing will be held what date?

MR. BRINK: It will be held two weeks from Monday, I believe, November 12.

MR. JENSEN: Thank you, John.

Our next speaker will be Dr. R. L. Green, Water Resources Research Center of the University of Maryland. Is Dr. Green here?

STATEMENT OF DR. R. L. GREEN, ON BEHALF OF THE WATER RESOURCES RESEARCH CENTER OF THE UNIVERSITY OF MARYLAND:

DR. GREEN: Mr. Chairman, I thought if you waited a little longer, I wouldn't need to give this presentation, it would have already been said. I am probably playing a game of semantics a little bit in pointing out that Paragraph 1 of the letter inviting us to this hearing seemed to me to be an error and perhaps the last speaker corrected my viewpoint a little here. I didn't quite understand the invitation to a hearing on the Maryland-District of Columbia segments of Chesapeake Bay. It is a hundred miles by river from D.C. boundaries down to the Chesapeake Bay. There is a little difference of viewpoint here that the problems are interrelated.

I think as Marylanders we might take individual exception to the second paragraph of the booklet, that estuarine pollution study, which says that belatedly the nation recognizes the problems. It is true that the nation is giving belated recognition to the boundaries and problems of estuarine waters. However, these problems have at least been recognized in Maryland for many years. But it is encouraging to note that the national interest is now catching up.

In Maryland the challenges, opportunities, problems have long been recognized. A number of constructive steps have been taken. In view of the emphasis throughout the day on problems, I think it appropriate to review just a little bit some of the constructive things that have happened.

In a report by a committee I was chairman of at the University, entitled Water Resources Management In Maryland, which incidentally was financially supported by the Department of Water Resources, we listed specifically twelve items dating back to 1914, relating to water resources management throughout Maryland but bearing directly or indirectly on the Bay. In addition, these are listed in the report and will be made available for the record. But there are a number of specific agency programs which relate to the Bay and estuarine waters of the State in addition to these.

I would expect that these will be referred to by other agencies, and I will pass over these briefly, but the Department of Chesapeake Bay Affairs and its predecessor agency, Tidewater Fisheries Commission, has responsibility for overall practice of the Bay.

It is worthy of note in passing here, though, that when the Shore Erosion Control Division was established as part of the Tidewater Fisheries Commission in '63, that the Journal of the American Shore and Beach Preservation Association reported this as being a unique establishment of a new program by a State.

This specific legislation had been preceded by Statewide authorization in the previous year to extend organization or the possibility of organization of Shore Erosion Control districts previously restricted to Anne Arundel County throughout the State and placing responsibility for this in the newly designated Chesapeake Affairs Department. This also provided the opportunity of technical assistance and financial assistance under certain conditions for the control of shore erosion which certainly is one of the problems of estuarine waters, and I believe has not been specifically referred to here today.

Since '47, the Pollution Control Commission and its successor agency has been operated. The Health Department started back in 1914. The Department of Forests and Parks is concerned with recreation. Maryland is a unique State and so is its University. As the land grant University of the State, it is concerned with resident instruction, research, and extension education throughout the State. However, our University is different from those of most other land grant institutions in that the Board of Regents is also the State Board of Agriculture. Its service and regulatory programs that are common to Departments of Agriculture in other States are integrated into the Agricultural Division programs of the University of Maryland.

This unique structure is relevant to the subject at hand here today because as a result of this organization, there is a far closer coordination between the University programs and those of natural resources agencies than I have observed in the several other States where I have lived at one time or another.

I would like to take just a few minutes here on a very cursory review of facets of the University program relating to the Bay and to management of the estuarine waters, these primarily as a basis for the viewpoints and recommendations which follow.

Dr. Cairns referred this morning to the Soil Conservation Committee as the policy guidance and administrative assistance program relating to soil conservation districts. The extension service has been concerned with education throughout the State and related to the Bay around improved natural resource utilization since 1912. It is obvious that, as has been referred to several times today, better land and water management will minimize pollution from agricultural sources, and in recent years those of us concerned with agriculture must admit that we, too, are guilty of contributing to pollution.

The agricultural experimental station is concerned with research in all aspects of agriculture. Many of these relate to improved management of land and water resources and several projects at the present time relate directly to estuarine water management. Some of these include seafood marketing, oyster processing, economy of the Bay with particular consideration for water milfoil, also water quality relating to brackish water, use for irrigation and especially during the past few years research on the use of agricultural chemicals has been intensified and is pertinent to both the problems of pollution and beautification.

Indirectly reference was made this morning to channelization of some of the marshes and perhaps a unit of the State Board of Agriculture is contributing to this. Perhaps the program is not understood. The channelization to reduce the mosquitoes is simply to expedite the flow of water into and out of the marshes. It is not a drainage program. There is an agricultural drainage program but this is completely different and apart and ordinarily does not get into the marshes and in the wetlands.

There is also a mosquito control program through the use of sprays that many of you perhaps are familiar with, this is shared with local jurisdictions. I am informed that the insecticide used in this during the past few years has been Malathon from which there are no residues to contribute to other ecological problems.

Dr. Cronin can speak of course for the programs of the Institute of Natural Resources, but it would be pertinent for me to refer to the biological Departments of Botany, Entomology, Microbiology and Zoology who have concerns for all forms and are conducting research in many aspects of the biology of estuarine waters and the related water quality parameters and aquatic ecosystems.

At other areas, perhaps in the areas where the problems get the stickiest because we start dealing with law and people, the Bureau of Business and Economic Research has concerned itself with the economic optimization of resources management, the Bureau of Governmental Research has made a number of individual case studies which, while relating to specific towns and other local government units, do impinge on the organization and the management of land and political entities adjacent to the Bay and are therefore pertinent to the Bay.

The Water Resources Research Center has been in operation since 1965 and to date we have three specific projects in estuarine waters, one I am sure is of very much interest to those of us that like to go swimming. It has to do with potential control of stinging sea nettles to enhance recreational uses of the Bay.

A second has been concerned with the impact of thermal loading on the ecology of the Patuxent estuary.

I should add here that we have contributed to the financial support for this project. It is in the Institute of Natural Resources as is the sea nettle project. This has also received financial support from the State Department of Water Resources. Before Paul McKee clobbers me over the head back of me, saying Hey, we helped on that, too, I say we have contributed to it, but the major support has been from other areas.

The third study just recently initiated is concerned with the evaluation, inventory if you will, and development of parameters of measurement to evaluate impact of sewage outfall on the fish population of Maryland streams, both estuarine and non-estuarine waters.

Actually, all the projects are related to the quality of estuarine waters in one way or another. They may be up on the hill land perhaps a little bit, but we are still concerned with the overall hydrologic systems.

We are studying the assimilation capacity for waste waters of both some of our soils and different forages and specifically at a poultry processing plant.

This is one very important study from which good indications of feasibility are coming out now.

Also concerned with the management techniques of cannery wastes. Following this in the agricultural area, the management of waste from swine-feeding flowers to keep the animal waste pollution from ever reaching the stream, again going back to the application on the land.

The other projects include desorption of insecticides by charcoal filters, biokinetics, biodegradation of detergents both from chemical engineering and microbiological aspects of it, dispersion of heat or heated jet streams of water into large reservoirs, and a study on the factors affecting recreational uses of water has been completed. The report is not yet available.

Adequate reference has been made to the conference on the Chesapeake Bay. I think this climaxes really the interest of all of the State agencies, including the Water Resources Research Center, the other units of the University in research and education, problems relating to the Bay.

In concluding these remarks it seems appropriate then to recommend specifically, one, that in the final report from this natural estaurine pollution study that estimates of future manpower needs of existing agencies and institutions be prepared so we have a look at what the manpower probably is.

Secondly, that the report include inferences on research priorities based upon breadth of application and intensity of the problems which can be anticipated on the basis of present population and other porjections.

Third, that strong recommendations should be made pertaining to the financial support for education and research as well as operation and management programs in the immediate years ahead.

In spite of the comments that have been mad earlier, it seems to me that there are enough agencies in existence, but we may need some new mechanisms for the coordination of some of these. It occurred to me while Senator Raley was speaking that the Water Quality Act of 1965 has been effective in bringing about State adoption of water quality standards. I think Gene Cronin was reacting the same as I did, that Federal guidelines, with a definite date for adoption of improved programs, might be followed by State guidelines or State regulations which might again prescribe deadlines for county or regional adoption of regulations at the operating level. Thank you, Mr. Chairman.

MR. JENSEN: Thank you very much, Doctor. Are there questions from the Panel?

MR. COULTER: Dr. Green, this morning during Dr. Anderson's presentation, I believe the question came up of spray irrigation of waste from canneries and chicken processing plants. The State agencies are working very hard to develop spray irrigation and land disposal methods as a means of preventing pollution and keeping waste waters from going into especially the high quality waters of the Bay. Do you have any thoughts you can give us on the potential pollution of soil that Dr. Anderson referred to?

DR. GREEN: Thank you, Jim. I wonder how long you want me to talk. I won't give the usual 50-minute lecture.

I have a very strong feeling. My own background in agricultural engineering has been around drainage and irrigation water management as related to agriculture. I have a very strong feeling that we have missed an obvious answer to many of our pollution problems by not going to the return of these to the land for the assimilation by plants and bacteria of the soil. In carrying this out, there has been a very fine research project, some of you are aware of, at Penn State is the most detailed one I know of, where they have been putting a quarter million gallons of effluent from a municipal plant, per day, on some 60 acres of land since 1963, and to date the only thing they have found below about the top 6 inches of soil is water with a little hard detergent in it back in the first years of this project; and one of the men there expressed it to me they were sorry all the hard detergents went off the market because this was the best identification they had as to where the water was really going. The results of that are such that they are increasing the size of their distribution field, as I understand it, and have no concern for using this as a recharge system whence the wells and water supply for Pennsylvania State University are being drawn.

On the project where we have been looking at waste water assimilation capacity of some of the forages, different grasses, we have observed one plant where they have put the equivalent now of about 2 inches of rainfall per day five days a week for about four years, and there has been no real danger that we can measure. There is concern that we have cut the forage to feed to cattle and the forage will decompose, and we will not have solved the problem but simply have relocated it with respect to time by delaying a few years as far as the potential. There are some hazards. It should not be gone at blindly, but I think not only from some of the marginal cost operations such as the cannery plants and processing plants where they use large quantities of water, where a typical sewage treatment plant is not economically feasible, that spray irrigation distribution, returning to th land, has a very high potential butnot only that. I think we can decrease the eutrophication problems of many of our streams in those areas where land areas permit the water from the traditional sewage treatment plant to be put back on the land to be used by crops, to be used by the forests, and purified so to speak, by the plants and micro flora and fauna of the soil before it returns to the ground water and thence to the streams. There are some very strong possibilities on that, but I wouldn't give the full 50-minute talk.

MR. JENSEN: Thank you, Dr. Green. Our next speaker will be Mr. Carl Johnson, the Executive Director of the Interstate Commission on the Potomac. Mr. Johnson.

STATEMENT OF MR. CARL J. JOHNSON, EXECUTIVE DIRECTOR OF THE INTERSTATE COMMISSION ON THE POTOMAC RIVER BASIN:

MR. JOHNSON: I always follow a long guy.

Mr. Chairman, distinguished Panel, ladies and gentlemen, I am Carl Johnson, Executive Director of the Interstate Commission on the Potomac River Basin. This is a Commission created by an interstate Compact in 1941, representing the States of Maryland, Pennsylvania, Virginia, West Virginia, and the District of Columbia, organized in the interest of water pollution abatement.

The tidal estuary of the Potomac River, a tributary of Chesapeake Bay, extends from Point Lookout, approximately 123 miles upstream, nearly to the western edge of the District of Columbia. In addition to its value as the second largest tributary to the Bay, this estuary provides shipping opportunity to the Washington area. It is an important fishery, both sport and commercial.

It is a breeding ground for fish and for wildlife. It is an important adjunct to the Atlantic waterfowl flyway, and it provides a tremendous recreational opportunity for millions of people in this region. Without doubt, it is one of the major natural resource assets of both Maryland and Virginia.

The Potomac estuary is also a recipient of wastes and waste effluents which are produced on the water and along the land area adjacent to it. The Washington region is expanding rapidly and no end is in sight. Recreational boating is growing rapidly in this affluent region. Residential and industrial developments are crowding the shoreline.

Even with high order waste collection and treatment systems, the future of the River in the Washington region is not bright. Run-of-the-mill treatment plants and plant operations such as those discussed in local newspapers during the past few months will produce another Lake Erie in the upper estuary. We are not too far away from that state at present. If we are to continue to have the Potomac Estuary, with its many benefits, we must, therefore, forego the temptation of economical but irresponsible use of the estuary as a dumping ground.

This may appear too simple an answer for many people, but this is fact. Studies and comprehensive surveys are valuable. But they will not protect the Estuary. The simple fact is that to protect the Estuary we must stop dumping. This will not happen until the top leadership of Maryland, Virginia, and the District of Columbia go firmly on record with their agencies and the public that this is their policy. This will not happen until the two States, Maryland and Virginia, officially recognize the Estuary as a State resource and establish their right to review and modify local planning and zoning practice when necessary.

Sedimentation is also a particular problem in the Potomac Estuary. Nearly 2.5 million tons of sediment is transported annually from upstream reaches and the Washington area to the Potomac Estuary, where most of it settles out. This does not include production in the coast plain region below Washington. Coastal plain soils are most easily eroded, consequently land development in this area is extremely hazardous. Here again, while Federal assistance is needed, pollution from sediment can be controlled only by the concerted efforts of State and Local governments.

One of the major consequences of sediment deposition is the displacement of water areas. Current dredging practice maintains navigation channels only. This means that the balance of the river is being filled with sediment which minimizes the ability of the river to assimilate wastes.

This situation is being aggravated by the filling of marsh areas. These marsh areas are valuable waterfowl and aquatic life areas. It is also our understanding that marsh grasses are important phosphate users.

We would recommend the following as basic to the protection of the estuarine environment in the Potomac River:

1. Formal recognition by the States and the District of Columbia of the Estuarine zone as an important State resource.

2. The establishment by the States of their right to review and modify local planning and zoning.

3. The development by the States, with Federal cooperation, of a regional land use plan for the Estuarine area below the District of Columbia, which will provide guidelines for local planning.

4. The determination of the needed volumes and a plan to maintain the necessary amount of fresh water inflow to the Estuary.

5. The identification and evaluation of marsh lands and provision for necessary protection.

6. The establishment of, and adherence to, firm schedules and financial support for treatment plant

construction and operation, municipal, Federal, and private, which will remove the greatest amount of pollutants, including nutrients, as technology makes it feasible. Adequate operation will necessitate good training programs.

7. The establishment of strong local programs with State and Federal support designed to reduce erosion, sediment transport and deposition to a minimum.

Thank you, Mr. Chairman.

MR. JENSEN: Thank you, Mr. Johnson. Mr. Reed.

MR. REED: Mr. Johnson, you make the statement, talking about the estuary, this will not happen until top leadership of Maryland, Virginia and District of Columbia go firmly on record with their agencies and the public that this is their policy. Does this imply that you are dissatisfied with the water quality standards that have been established? In other words, water quality standard is a statement of policy and implementation plan.

This particular statement plus the one on Page 3, a formal recognition by the States and District of Columbia of the estuary zone as an important State resource, seems to imply you don't think things have gone far enough. That is, in other words, you are not satisfied with water quality standards.

MR. JOHNSON: I am not certain that I would say that I am not satisfied with water quality standards. I think what I am really making reference to is if we are actually going to protect the estuary, I think we have to firmly establish what it is going to take to establish the estuary, to protect it.

I am not certain that the present standards will actually do this. If they will, fine. But I am not certain they will. I am not certain that we know at this time what it is going to take to reverse this process that is going on in the upper end of the Potomac Basin.

MR. REED: I don't think anybody would quarrel with that, that we have to constantly strive to improve our knowledge and then act on that knowledge, but it was my feeling that as of this particular time the water quality standards represented the best judgment available, and it did very firmly in my mind also establish that the various agencies, therefore, by adopting these standards, had a policy. This is why I was disturbed to see this statement in here.

MR. JOHNSON: I think I would agree with you we have a policy, a policy. My question is, one of the problems that we have is related to standards. Take the pleasure boat problem that we have in the estuary. In order to meet the standards we are going to have to develop policies and programs in regard to these sources of pollution.

MR. REED: I don't know that we need to prolong it. My feeling is that the water quality standards did achieve that goal insofar as our knowledge will carry us at the present time.

MR. JOHNSON: I hope you are right, Paul. I am not certain in my own mind of that statement.

MR. JENSEN: Are there other questions from the Panel? If not, our next speaker will be Mr. Worthington J. Thompson, Delmarva Advisory Council.

STATEMENT OF MR. WORTHINGTON J. THOMPSON, ON BEHALF OF THE DELMARVA ADVISORY COUNCIL:

MR. THOMPSON: Mr. Chairman, members of the Panel, ladies and gentlemen, the Delmarva Advisory Council is a regional coordinating agency concerned with the desirable development of those sections of Maryland, Virginia and Delaware which comprise the Delmarva Peninsula. The Maryland sector is popularly described as "the Eastern Shore." Historically, the area has enjoyed an abundance of potable water and a treasure of saline and brackish waters giving sustenance to valuable marine resources. Rising population trends and pressures for industrial and other forms of economic expansion now compel Delmarva to look with concern at relative developmental and ecological values. Of overshadowing significance in this equation is that incomparable estuary, the Chesapeake Bay and its tributaries.

Water pollution, whether traceable to industrial waste or human waste, poses the greatest threat to the environmental values of estuarine resources. Of only slightly less magnitude is the threat arising from preemption of marshlands, estuarine and coastal. Both pollution and marsh encroachment in the Delmarva area have an adverse effect which is economic as well as environmental.

Economically, they imperil rich marine resources and the commercial activities dependent upon them. Ecologically, they disrupt or destroy birdlife and mammal habitat. Of special significance is the effect upon migratory waterfowl. Pollution may have a more extensive economic disbenefit in that it can impair economically important recreational activity such as sport fishing and the productive industries patronized by the participants in that sport.

There is another aspect of water pollution which has an effect perhaps peculiar to Delmarva and other coastal areas. Reference here is to the problem arising from disposal of treated waste in estuaries used as breeding areas for seafood species. Certain sections of Delmarva have been slow to install modern sewage and waste treatment facilities. This problem, therefore, has only recently come into focus. Now that more population centers are updating sewerage systems to meet more demanding Federal and State standards, there will be more problems of this sort to be faced.

The Delmarva Advisory Council recognizes that the combination of all the factors represents a vast enigma. We offer no solution but we do recommend certain elements of the means by which a solution might be reached. Although it is a cliche, we cannot say too often that the key word is "planning". The planning, however, must be coordinated -- balanced, as it were, between the inexorable pressures for economic expansion and a predetermination that the environmental values shall not be dissipated. It is our view that the planning, among other things, must look toward a legislated withdrawal of substantial land and water areas from all forms of development; that the remaining area should be legislatively controlled as to priority of use and by well-enforced regulations on pollution, dredging and filling and other essential use conditions.

It becomes obvious that such broad based, determined planning will tax the intellectual capabilities and the courage of those entrusted with it. But there must be more. Central to planning success are probative facts and a wide diversity of specialized research in such fields as marine biology and ecology, wildlife preservation, outdoor recreation, and others.

DAC feels that a very important step was taken in the enactment of Public Law 90-454 last August 3, 1968. This gives statutory life to Bill No. H.R. 25 discussed in the document circulated to this conference. The Delmarva Advisory Council has before it a resolution pursuant to which we shall record our support to the Secretary of the Interior and emphasize the importance of estuaries and coastal areas which are major assets of Delmarva.

In summary, our agency, from the vantage point of intimate association with people, plans, and things of Delmarva, has concluded that our priceless environmental assets are in jeopardy. Realistically, we must accept the fact that population in the estuarine and coastal areas will increase. To the end that our citizenry may enjoy the high living standards open to all

Americans, there must be also economic development in the form of industrial and commercial expansion, municipal growth, including new towns, housing expansion and improvement, better transportation. Our position is that these necessities can and must be met with minimum sacrifice of Delmarva ecology. Above all, we must accord top priority to the ecology of Chesapeake Bay and the other estuaries and tributaries which enrich our existence.

For all these reasons, we applaud the vision and the awareness which this conference bespeaks. The Delmarva Advisory Council is prepared to blend its efforts with all of those who share concern for pollution abatement and every facet of socio-economic self-control which assures the better life.

MR. JENSEN: I thank you. I think this is another excellent resume of the problems we face. Does the Panel have questions or comments? If not, thank you.

Mr. William O'Brien, representing the Save Our Rivers League.

STATEMENT OF MR. WILLIAM O'BRIEN, ON BEHALF OF THE SAVE OUR RIVERS LEAGUE:

MR. O'BRIEN: This Save Our Rivers League is from St. Mary's County. You have had a lot of St. Mary's County here today.

We have representatives from some fifteen citizens' associations along the Patuxent and the Potomac Rivers plus the St. Mary's County Watermen's Association. I think I can express their feeling about all of this study and thought and time that is being put into our pollution problems and conservation.

We feel that it is good, that it is necessary. But we are rather skeptical. This seems to be sort of an egghead thing, way up above us. Those who have to make their living tomorrow morning out of the water, those whose beaches in front of their property, raw sewage comes up. We can't wait five years or ten years. We are afraid it is going to be too late.

What I am getting at is that we feel that the State should enforce the existing regulations that, as the watermen say, they stick up a flag, polluted, you can't take oysters, they don't do anything about the source of it, it is all study.

We believe the time has come when the State Health Department and other departments must stop putting off getting down to brass tacks and enforcing the law.

As I said, whereas we realize this long-term planning is necessary, it is also necessary to do something right away. The Chesapeake Bay Affairs Committee, we think that the policing by that Committee should be tripled immediately. You ride out there to the Bay, here is a slick ten miles long, easy to detect. Why is it? Here is sewage dumped from a township into the Bay, polluting the whole small bay or river.

Two weeks from now myself and a couple watermen have to go before the Corps of Engineers to try to fight a permit to take a river, St. George's River, that has fed people in the area for generations, now the International Seafarers Union have bought the land around it; so they figure they have bought the river. So they are bulkheading and dredging out a natural oyster bar, one of the best seed areas. We, the public, have to do it. Whereas you, I don't mean this exactly, whereas the different departments that have their head up in the air somewhere -- I want to say now that the people want some action. That is all. Thank you very much. (Applause.)

MR. JENSEN: Mr. O'Brien, we certainly appreciate your taking time to be with us today, and I think the applause indicates how the people feel about your statement. Does anyone wish a comment on it?

Next is Martin Whitcomb, RD #2, Log Inn Road, Annapolis.

STATEMENT OF MR. MARTIN WHITCOMB:

MR. WHITCOMB: I want to first off thank this group for being able to present my views. Unfortunately, fighting traffic from Connecticut through New York last night for six hours and an accidental food poisoning this morning did not help me much in presenting this.

I am speaking as a citizen and as a landowner in Anne Arundel County. I wish to say that I have heard today the statements by people down in St. Mary's County, and all I can say about that is Amen. We have had a problem as citizens that if I hadn't lived through it, I wouldn't believe it.

Some time ago we got information that there was a large sewage plant being planned adjacent to our property and also in the middle of the Sandy Point State Park. For those who may not know where that is, it is down here about six or seven miles from this room, and it has one of the largest recreation uses of any public park in this area of the nation.

The first decision that I had to make as a citizen and landowner was what position should I take on this project? We certainly don't want to be against everything, nor do we wish to be against progress, nor do we wish to be against any prevention of pollution.

However, the deeper we looked, the more thorough we became in our investigation, the more nationally and internationally known experts we talked to, the more concerned we became. We obtained copies of the plant plans and specifications and discussed them with a number of people. Admittedly the analysis was short, but from previous experiences we were guided into many hazards.

At this meeting no one has spoken about what the problems are concerned with some of the cures. I do not wish to see us go off half cocked and have problems like the medical trade has had with medications which ended up killing the patient.

We, early in our analysis and discussion of this, tried to solicit and get help from our elected and employed officials and technical experts. For the most part unfortunately we did not get any cooperation at all. In some cases, quite the negative.

In looking into the reasons why, we got much information from people who could not be quoted. But it was very, very disturbing.

The conclusion that almost all of us who have looked at this intimately for a while have come to is that we are primarily involved and cannot solve our water, our air pollution, ground pollution problems until we solve the political and professional pollution. We have in our case an example showing this very strikingly. We were only allowed basically zoning hearings. Zoning has been brought up here as a protective tool. In our case it was used as a tool against us, because we were only allowed or only had zoning hearings.

On the surface zoning hearings look very good. You have in this county and many other counties the first hearing before a Zoning Hearing Officer or its equivalent. However, the next step is before a Board of Appeals. Then if you are not satisfied with that decision, you can go to the Circuit Court. It acts as a Court of Appeals. If you are unhappy with that, to the Supreme Court of the State of Maryland.

However, when you look at this closely, you begin to find that in any project in which a strong administration has an interest that this whole process is one of financial punishment and complete futility. Let's look at the realistic problem.

First the Zoning Hearing Officer in this county and some of the others is appointed by the County Executive or the County Administration. He, of course, is very compliant with their wishes.

The Board of Appeals is appointed the same way. They are spoken of as political appointees. Their decisions and viewpoints also reflect that of the Administration.

We say the court is a place where we will get the help. The court by Maryland law is only allowed to review what is in the written record. Also in the laws, which after many thousands of dollars of legal fees, I found out by buying a copy of them and reading it, the court is only allowed to affirm the decision of the Board of Appeals, unless the Board of Appeals has been shown to be illegal, extremely arbitrary, or capricious in their decision.

There is also a ruling which the judges of our court, and from a conversation I had with one of the members of the Supreme Bench of Maryland also affirmed, that it applies with them in which the judge in his decision and in his review of the case is not supposed to consider any information which the Board of Appeals has considered debatable.

How does this whole system work? What it means is that fundamentally you don't stand a chance if you are a citizen. We had in the first hearing, we realized it was foolish, however, it still cost us several thousand in legal fees. The Board of Appeals hearing, we worked hard, and we solicited, and we got some expert witnesses. However, I would say that 95 percent of the professional people who initially indicated a willingness to truthfully testify, not to represent us, but to only give their best professional opinion before the hearing, requested or refused to participate soon after they had agreed that they would.

We have our own suspicions as to why they refused. In some cases the people very honestly said that it would be extremely hazardous to their agency, their organization, et cetera, and their relationship to the State of Maryland.

We presented and had presented evidence, there were some other problems we have, I won't go into. However, I was at that time naive about the laws and wondered why the Board of Appeals kept referring to the statements of our witnesses as debatable.

After we had the unfavorable decision by the Board of Appeals with some restrictions placed on the land which the applicant, the County, said they were going to live up to, we went to the court. The court affirmed the decision with a rather lengthy piece of paper called Memorandum of Decision.

To illustrate how effective this is, just recently we called the county and one other into court for violation of these covenants they had placed upon the use of the property. The court in its wisdom said that that decision wasn't a decision at all, therefore, the court didn't have any jurisdiction, that those numerous pages labeled Memorandum of Decision were just his personal viewpoints that he wanted the Board of Appeals to be impressed with.

Since we also previous to going to court had asked for administrative assistance by requesting help from the various administrative departments, and nothing was done, this left us without any help at all.

The request for this plant and the need as expressed in public statements, in the press, and in applications for Federal grant, was for a number of residential communities, some quite remote from our location. The ink wasn't dry on the decision before the

County Administration in our case and a large land exploiting firm to which a number of very prominent people in our State government are associated or very friendly with, applied for industrial zoning of an area very close to the plant. The County Administration came out and circulated a brochure saying that now that the sewage plant was available we had to solicit industry in this whole peninsula to pay for it. Yet on the Federal application for moneys, they said that no industrial wastes would be received at this plant.

This, to us, was not very good. In the publicity put out by the Federal government, State government, various private groups, water pollution, air pollution, they keep saying that the citizen should be involved, it is up to the individual citizen to help. I am saying that the individual citizen doesn't have a damned chance. At least in this case, we didn't.

We have another example that occurred in this that might be interesting. Excuse me if I ramble a little bit. The contract for this plant was advertised, and the letter award to the successful bidder was sent while our zoning cases were still in progress.

Many people here may not understand why we have fought this so much. What is wrong with a sewage plant? Many people in the field of sanitary engineering say that modern waste treatment plants can be built that will not harm the environment, not annoying to the local citizens, and will not pollute the waters or the air. I would like to see one. I haven't found one in the State of Maryland yet.

There are hazards inherent with the design we have, and as far as I could see, are inherent with the other plants which we have inspected.

The testimony given by State and County officials was that this plant would not affect the oyster beds, would not close them, would not put out noxious odors, would not be a hazard to us. Yet the shellfish sanitation standard by Mr. Jensen here was largly instrumental in implementing definitely put in restricted zones. There isn't anything we have been able to discover peculiar to this design that is any different from any other plant which has been polluting or does pollute shellfish beds or the receiving streams.

The air pollution portion of it is something which people normally think only consists of odors. There are noxious odors. But even more subtle are the things that are flying through the air, the aerosols, various pathogenic agents which are picked up through the activity of the bubble bursting, weather action from the aeration tanks and any place where there is disturbance of the liquids.

There is another problem that is so serious that the City of New York has concerned themselves and made a complete revision of all their public works facilities. That is one that we object to very seriously but under oath, an official of the State Health Department said was nonexistent. That is the handling of large amounts of the one-ton tanks of pressurized liquified chlorine gas. New York found that by changing to a liquid high chloride solution, they saved money, they were able to lower labor costs, and the Unions allowed them in some cases to operate plants unattended, where previously they had to have at least three operators around the clock.

This hazard is very serious because a textbook case in one of the best known texts on chemical warfare by Prentiss shows that a 30-pound leak can be fatal within two or three minutes to people within 1,600 feet. We sort of shudder when we think about our children and ourselves, our guests, sleeping in bedrooms only 300 or 400 feet away without any alarm system, without any protective devices at all.

As a result of some of these things I think that we need to have better codes or better standards of administrative activity, professional honesty, and information as fed to the press and the public.

Professionals, sanitary engineers, public health officials, others, should not have the right to rationalize, advocate and promote something that is contrary to the best technical information. Maybe they are putting their job in jeopardy, but there are times when all of us need to stand up to be counted. We shouldn't ignore nor discount what can happen or say it won't when all the information that a citizen can reasonably put his hands on indicates that it will.

The reasons for, of course, the problem in our area we feel very firmly is the desire of prominent people to exploit the land. In this case instead of putting in an industrial site and then hollering for sewage and water, they put the sewage plant ahead of the industrial plant.

We also have a problem in our courts and zoning procedures where it was ruled, for example, by the Board and by the court that although we citizens pleaded about the effects of this on our Sandy Point State Park, and upon our own baiting waters in the Bay, they said since zoning only applied to the local residents, basically there weren't any residents of Sandy Point State Park or Chesapeake Bay, that any effect upon them could not be considered.

So we are here, I think many of us, I think the people from St. Mary's County have much the same problem, where much of this, the basic original decisions are done in virtual secrecy, the public and the affected area people have no access, nor are they invited to the discussions that may destroy their very environment they are living in.

I still think the citizens of this country should have the right to information, should have the right to be heard long before a project becomes a fait accompli. Thank you. (Applause.)

MR. JENSEN: Thank you. Any questions or comments from the Panel? Thank you very much.

Our next speaker will be William W. Jeanes.

STATEMENT OF MR. WILLIAM W. JEANES:

MR. JEANES: Mr. Chairman, members of the Panel, my name is William Jeanes, and I have a farm. I took many a property owner on the upper end of the Chesapeake Bay on the Elk River right adjoining the inland waterway where the Army engineers have dredged the channel to 35 feet.

I have owned this property for a great many years. My family lived there before me. Actually, I work in Philadelphia, and in a sense I am here emphasizing the regional planning aspects of our problems. Because the upper end of the Chesapeake Bay serves an enormous number of the great population centers that are outside the State of Maryland, areas such as Philadelphia, Camden, Wilmington, Delaware, Reading, Pennsylvania, Lancaster, York, and to some extent even Baltimore, there is enormous use of the upper end of the Bay.

The upper end of the Bay is somewhat different from the rest of the Upper Chesapeake in that it is essentially an area where we don't have problems of jellyfish or pollution, it is fairly pure up there. I want to say to you all, I am not here to complain about the present state of the water in the Upper Chesapeake. I think it is magnificent.

Partly, I suppose this comes from the fact that I was brought up along the borders of the Delaware River where the water is really horrible. In order t try to clean up the Delaware River to bring it up to a standard that would be something less than that existing on the Upper Chesapeake will cost something in the neighborhood of $400 million. There is a project, a definite effort at the present time under the Delaware River Basin Commission, to actually carry out a plan that will do something short of that, but they have set standards that will enable industry and the cities nearby to do this job over a twenty-year period.

We need recreation in our metropolitan area. We have called on the Army engineers to help us to provide that recreation. The Tuck's Island Development is going to be an enormous development costing over $150 million in the upper reaches of the Delaware River to provide an area for freshwater recreation which will be less in size, both in area and in shoreline than that already existing in the Upper Chesapeake.

So that here we have two things going for us in Maryland. We have got something that is in existence that they are trying to reproduce in Pennsylvania in terms of pollution control, along the Delaware River and at Tuck's Island for recreation.

I come here today and speak to you because I think we want to remember the Upper Chesapeake, this area of fresh water is a very valuable asset and one which deserves a great deal of preservation.

We are faced with industry encroachment. We have had some trouble up there already. Our problem hasn't been that we were concerned that there was going to be industry, but we were mostly concerned with the problem that we were likely to get industry that polluted.

I would like to read a letter that I wrote to General Cassedy in connection with the preservation of fresh water in the upper end of the Chesapeake Bay. This letter was dated August 1, 1968.

Directed to Lieutenant General William F. Cassedy, Chief of Engineers, Department of the Army, Washington, D.C.

"Dear General Cassedy: As work progresses on the widening and deepening of the Chesapeake and Delaware Canal, it has become increasingly apparent that great biologic changes are taking place in the waters of the Upper Chesapeake Bay. I am much concerned about these changes and it seems to me that far too little consideration was given biological factors when the Corps of Engineers prepared benefit ratios prior to the 1954 authorization to further enlarge the canal from a 250 feet width and a 28 feet depth to a 450 feet width and a 35 feet depth.

"It is my understanding from the limited studies made by the Engineers after the canal was first deepened to 28 feet in 1938 that the loss of water from the Upper Chesapeake to the Delaware through the canal at that time was estimated to approximate 1000 cubic feet per second -- a net average day-in and day-out loss which takes into consideration that the flow reverses during the normal tidal cycle.

"With the straightening, widening and deepening of the canal it is not unreasonable to expect this loss to increase to 4,000, 5,000 cubic feet per second. This is considerably more than the flow, during recent droughts, of the Susquehanna River which supplies 87% of the fresh water entering the Bay above the Potomac River.

"As a result two things are happening already or are going to happen when dredging is complete:

"1. The Chesapeake Bay, above the Potomac at least, no longer has or will have effective flushing to purge it during dry summer months. Either the water will slosh around going back and forth up and down the

Bay a few miles with each tide cycle, or under the most extreme conditions, actually will work its way northward.

"2. The fresh water of the Susquehanna, in times of drought, is being carried through the canal and into the Delaware at increasing rates as dredging continues. This water in ages past reduced the salinity of much of the Bay and kept the Upper Bay completely fresh except in times of extreme drought when it became brackish.

'The biologic effect of these changes, I believe is tragic. The economic and sociological effect is becoming increasingly apparent, and is proving harmful to Maryland and the surrounding area.

"I respectfully request that you seek to revise your authorized project for the Chesapeake and Delaware Canal to provide a means to inhibit or stop entirely this loss of water from the Chesapeake to the Delaware.

"What I think must be developed is a system of baffles or locks in the narrow confines of the canal so that during periods of relatively low flow in the Susquehanna they can be put in operation.

"I further request that you undertake new flow studies under varying conditions in the canal to determine with greater exactitude the amount of fresh water being lost.

"The Chesapeake and Delaware Canal deepening was authorized in 1954. We have all learned and changed our attitudes since then. I do not believe that today the Army Engineers should consider as satisfactory a public works project which so seriously damages a very great and important body of water on the Atlantic seaboard."

The other point is question of enforcement of the existing water pollution control laws in the State of Maryland. I think it is absolutely essential that when plants are installed and come into being that the Department of Economic Resources, Department of Water Pollution Control, and Water Resources, make sure that these intended plant operators understand that the law is going to be enforced. This not only means that they understand that they have to design their plants correctly in the first place, but they have to understand that they are going to be under very careful surveillance.

I would urge therefore that the State appropriate funds sufficient to enable the Department of Water Resources and the Department of Health of the State to make tests frequently enough so that there can be a real supervision of the waters of the State of Maryland. Thank you. (Applause.)

MR. JENSEN: Thank you very much, Mr. Jeanes. You touched on a couple of other aspects of the use of this particular estuarine resource. Any questions or comments from the Panel?

MR. PATE: Mr. Jeanes, do you have any specific incidents in mind when you speak of industries being informed of the water and air pollution control regulation? Do you know of any that haven't been recently?

MR. JEANES: I don't really know whether or not they have been informed. I know there have been cases when the industries have acted as though they haven't been informed. I could cite the case of the B. F. Goodrich Company when they came into Cecil County seeking a zoning change. The hearing was a few days before Christmas. When we raised questions about pollution control, they seemed very surprised and weren't able to give us much in the way of information. Therefore, there was a subsequent meeting.

I do know of another case where an industry took over an existing plant fairly recently, $2 million was invested in the plant, and I am sure that the Department of Water Resources and the Department of Health are aware of that situation now.

MR. PATE: No, I am not. Which plant is that?

MR. JEANES: The second one?

MR. PATE: Yes.

MR. JEANES: The second one involves the Weyerhauser Company.

MR. PATE: On the Goodrich operation I think you must have been talking to the wrong people, because I know they were fully informed of all air and water pollution regulations.

DR. CRONIN: I would like to comment that I may share your very great concern about the effects of deepening and widening of the canal on the Upper Chesapeake, environmental quality of species in it. I think one of the most serious ones is that these were not taken into any account as far as I know in the original decision to deepen and widen the canal, not even considered. I hope this may change in the future. It is rather frightening. Have you had a response from General Cassedy to your requests?

MR. JEANES: The reason I brought up the question today was that I got a response from him, saying it had been referred to the New York office, which is, I think, the District Office of the Army Engineers. I thought that the matter really deserved wider consideration than just by the District Office in New York.

MR. JENSEN: Thank you again for taking the trouble to come down from Cecil County and talk about this. We had the opportunity to fly over it yesterday and see a good many of the things you are talking about.

Our next speaker is Mr. Maurice A. Thorne, Westmoreland County Planning Commission.

(End, Volume I.)

STATEMENT OF MR. MAURICE A. THORNE, ON BEHALF OF THE PLANNING COMMISSION OF WESTMORELAND COUNTY:

MR. THORNE: Mr. Chairman, gentlemen of the Panel, ladies and gentlemen, I appreciate this opportunity to make a statement on pollution in the Bay area. As the Chairman said, I am a foreigner, but I am very much interested because I live on the Potomac, and Westmoreland County is on the Potomac.

I will be brief. I am from Westmoreland County, Virginia, representing the Westmoreland County Planning Commission. My primary mission is to express the grave concern of the northern neck of Virginia over the growing pollution of the Potomac River from human waste, industrial waste, siltation, and the recent added and increasingly serious threat of oil pollution if petroleum refineries are permitted in the Chesapeake Bay area or on the Lower Potomac Estuary.

Authorities state that oil spills cannot be prevented or cleaned up when they occur. Under no circumstance should any more crude oil be allowed to pass through the entrance to the Chesapeake Bay. It must be kept in mind that in effect the Chesapeake Bay is practically a landlocked body of water that does not have a large interchange of Bay and ocean water and consequently, the purging of pollutants is extremely slow.

One heavy oil spill in the Potomac could put the shell and fin fishing of the area out of business for an indefinite period of time. This would put at least part of an estimated 8,000 to 9,000 watermen, food processors and seafood-handling people out of jobs for an indefinite period. Maybe for all time.

Most of these individuals do not have industrial skills, and in many instances are too old to learn them. Some would have to be put on Welfare or migrate to urban areas.

Governor Agnew has repeatedly stated his hope is that reasons for migrating to cities can be reversed. Prevent oil pollution, and one reason for migration would be eliminated.

Nearly everyone here knows of or is familiar with the works of John Dos Passos, a previous commitment prevented him from being here today. At his request I have brought his very thoughtful letter on the subject of pollution in the Potomac Estuary and Chesapeake Bay, which he wishes to have included in the record of this meeting.

MR. JENSEN: The record will include this copy of the letter.

The above-mentioned letter to Mr. Eugene T. Jensen, Regional Director, Federal Water Pollution Control, Charlottesville, Virginia, from Mr. John Dos Passos is as follows:

"Dear Mr. Jensen: Since I shall not be able to be present at the public meeting in Annapolis Thursday I have asked my friend, Mr. Maurice A. Thorne to submit to you the following considerations:

"The proposition to establish a crude oil refinery or "topping plant" at Piney Point, Maryland, to be followed by a petrochemical complex and a free port for the import of crude oil and the shipping out of petroleum products without payment of duty, brings us face to face with the problem of how to save Chesapeake Bay and its tributaries from destruction.

"I don't need to remind you that Chesapeake Bay, along with the Inland Sea of Japan, is the greatest oyster-producing region in the world. The success of the Potomac River Fisheries Commission in reestablishing the oyster beds on the Lower Potomac and in managing their harvesting points the way to what could be done on a larger scale to protect and improve the clam, crab and finfish population of the entire bay. With proper management Chesapeake Bay could provide the nation not only with enormous crops of seafood but with a livelihood for a large population.

"To bring this about pollution from cities and industries has to be brought under control. Stringent measures have to be taken to restrict destructive industries to situations where they will do the least harm. We have to remember that on account of its narrow and relatively shallow opening to the sea Chesapeake Bay has to be thought of as a brackish lake. The pathetic fate of Lake Erie springs instantly to mind.

"If the Chesapeake is to be saved this is the moment when decisions have to be made. Pollution has already reached a critical point. The techniques are known, which if patiently and intelligently applied by public officials could gradually minimize pollution from the cities. The Potomac River Commission has shown us what can be done by cooperation between Maryland and Virgini in the Lower Potomac. Wouldn't the sensible course/to be work for a moratorium on the establishment of any new industries which are likely to disturb the ecology of the region until some agency can be set up, possibly by Maryland and Virginia and the Federal government which might propose and implement a plan for the rational use of the enormous resources of the Chesapeake Bay region?"

MR. THORNE: Also I have a statement by Mr. Howard J. Schlereth which is a convincing technical exposition of the exceptional hazard of permitting the shipment of crude oil into any part of Chesapeake Bay. Mr. Schlereth asked me to request that his statement be made a part of the record of this meeting. I can personally vouch for the professional competence of Mr. Schlereth.

MR. JENSEN: It may be made part of the record.

Letter to Mr. Maurice A. Thorne, Planning Commission of Westmoreland County, Montross, Virginia, from Mr. Howard J. Schlereth is as follows:

"Dear Mr. Thorne: I have informed you of another request made to me to give expert opinion on the potential threat of the Piney Point Topping Plant as a pollutant to the waters of the Potomac River and Chesapeake Bay. I wish to give such advice only because I am a resident of Westmoreland County, an owner of land on the Potomac, and a witness of what has taken place in similar environments throughout Asia, the Middle East, California, The Great Lakes, the Hudson River Valley,and the Delaware River Basin. All I can do is to plead that the people in our area do not let the same erosion of the natural benefits take place here as has occurred elsewhere.

"You will find my comments in the attached study of the oil problem as it applies to Piney Point. Mr. Eric Jansson has asked for it, and that a copy be sent to Doctor J. Patrick Jarboe. You will find their addresses below. They desire the information before Saturday, October 5th.

"You can see that my recommendations can lead to but one conclusion, and that is: Do not under any circumstances let any more CRUDE OIL pass the mouth of the Chesapeake to any more plants. Confine it to fuel oil. The experience with the plant on the York River should give the people in Maryland and Virginia fair warning that they are facing another Delaware River problem if permissiveness for pollution continues. The Delaware Bay is a relatively open body of water compared to the Chesapeake, and that degree of contamination in this Bay would be intolerable because there would be no open sea to flush it out.

"I hope that this will be helpful, and if there is anything more I can do in the local interest, please let me know."

The oil study by Mr. Howard J. Schlereth referred to in the above letter is as follows:

"ASPECTS OF POTENTIAL POLLUTION IN THE MANUFACTURE AND STORAGE OF ENERGY FUELS DERIVED FROM CRUDE OIL.

"CRUDE OIL vs. FUEL OIL. Some have a tendency to look upon Fuel Oil as being the same as Crude Oil.

This is erroneous and dangerous from the standpoint of pollution risks. Crude Oil is an unstable mixture of hydrocarbons with explosive qualities exceeding those of gasoline. Fuel Oil is a relatively stable mixture of hydrocarbons which is difficult to ignite, and can only be consumed under controlled burning conditions. This difference between Crude Oil and Fuel Oil is due to the fact that Crude Oil contains all the light hydrocarbons making up the Propanes and Butanes that become gaseous under normal atmospheric temperatures and pressures. Crude Oil also contains all of those hydrocarbons that are light enough to make up the gasolines and kerosenes that can be ignited by a spark.

"In March 1967, the M/S "Torrey Canyon", a 100,000 ton tanker, loaded with Crude Oil ran aground off Southeastern England where she broke up, and discharged approximately 600,000 barrels, 42 gallons, into the sea. This crude contaminated the beaches of Southern England and Northern France. The British Government spent an estimated $8,000,000 trying to clean up its shores with detergents, and aerial bombing of the tanker hulk. Since then our marine scientists have determined that the destruction of marine life was primarily due to the detergents used, and secondarily due to the light hydrocarbons in the crude oil having a toxic effect on marine life at the seashore. The damage was caused by the crude oil and not by fuel oil because it was discovered that limpets and other sea life would continue to graze on surfaces covered by fuel oil.

"It is essential to keep in mind this difference between Crude Oil and Fuel Oil in treating with the problems of supplying energy to industrial needs in developing areas where water resources are also an important part of the economy. It is essential that these water resources do not face the risk of contamination or even destruction because of the spillage of Crude Oil. Crude Oil is as different from Fuel Oil as Nitro Glycerin is from Dynamite, and should be handled with just as much caution.

"OCEAN TERMINAL vs. TOPPING PLANT/REFINERY. Ocean terminals are as necessary as service stations in assuring consumers of a constant supply of energy products at as low a cost as possible. Piney Point Terminal appears to fulfill that function quite adequately by handling and storing standard, well specified, fuels under systems and procedures that have been simplified and routinized throughout the industry for many years. Now, it is proposed to change this simple operation of receiving, storing, and shipping out standard stable products, to receiving variable crudes and manufacturing the standard products from them at the rate of 100,000 barrels a day. From the standpoint of a topping plant this would mean that a procedure along the following lines would be used:

"1. CRUDE OIL would be brought from overseas producing areas in tankers at the rate of four million, two hundred thousand gallons every twenty-four hours, 100,000 Bbls/day. The tankers would face a limiting factor of 39 ft. draft off Cape Charles channel at the entrance of Chesapeake Bay, and would probably be no larger than 50,000 ton capacity, 50,000 ton = 300,000 Bbls. This would result in tankers being discharged at Piney Point in maximum intervals of three days. Such tankers are discharged into shore tanks in six to eight hours; approximately 43,000 Bbls hr., a pumping speed of about 30,000 gallons a minute. This presents the constant risk of spillage of crude oil directly into the Potomac because of human or pipe line failure. The spillage would be in direct proportion to the size of the carrier. Promises by the operator to provide booms, or other mechanical devices to contain any spillage, should be made contractual and weighed by the experience that such spillage accidents usually occur when weather and water conditions make such planned preventatives ineffective.

"2. A CRUDE TANK FARM would receive and store the Crude Oil until it is processed. These farms generally consist of a number of floating roof tanks, each tank, several tanks, or all surrounded by dikes. These dikes surround areas large enough to contain the crude oil in the event that a tank catches on fire and ruptures. Because of the explosive nature of crude, lightning is a serious danger, and a tank struck by lightning is much more vulnerable to ignition than fuel oil, or other product, except gasoline or unstabilized naptha. Aside from the fire hazard the crude tank farm contributes to air pollution. The light hydrocarbons continue to escape, and in the light wet southerly winds mix with the atmosphere to form a sour-smelling smog.

"3. From the tank farm the CRUDE OIL is sent usually to what is called an atmospheric pipe still, where the crude is heated and flows to a fractionating column which separates the oil into naptha, kerosene, diesel fuel, and fuel oil. Air pollution can result in this operation if the fuel supplying the heat to vaporize the crude has a high sulphur content, and the refinery has not built in adequate oxidixing devices to overcome the odors.

"4. The NAPTHA, which is unstabilized, is taken from the top of the pipestill to another fractionating column where it is separated into stabilized naptha and gas. The gas is then sent into an open flare where it burns constantly. This flare is also a source of air pollution, whether it is burning or not.

"5. The STABILIZED NAPTHA, called whole naptha, is sent to still another fractionating tower where it is separated into a light naptha and a heavy naptha. This operation causes no pollution.

"6. The LIGHT NAPTHA is sent to a naptha treater where the mercaptons, sulphur alcohols, are converted to desulfides and some of the heavier sulphur compounds are removed. These treatments often require the use of caustics. A topping plant of 100,000 Bbl/day may require up to 35,000 tons a year. The spent caustics would cause a great pollution hazard, and should under no circumstances be permitted to be discharged into the Chesapeake Bay area.

"7. The DIESEL and FUEL OILS will contain sulphur compounds that must be taken out. While the engineers insist that the topping plant will have a low sulphur crude as its feed stock, there is no guarantee that such a supply will be constantly available. If the topping plant is eventually required to run high sulphur crude, the atmosphere around the plant and in its leeward might be intolerable.

"CONTAMINATION AND POLLUTION PROBLEMS ARISING FROM THE ABOVE PROCEDURE. Actual experience during the past twelve years of operating a similar project on the James River, at Yorktown, has resulted in the conclusion that oil spills that have caused considerable public attention, "were judged by the board and other governmental agencies to be a result of loading or unloading operations at the dock by ship's personnel and not from a malfunction of the plant treatment facilities." This is a real problem in pollution. When it occurs, the culprit becomes elusive. He is chased from corporation to corporation and may eventually be cornered in Panama or Liberia where restitution through legal procedures is impossible. The only one who is penalized is the fisherman deprived for a time of his livelihood or the neighboring resident through the contamination of his waterfront. Spilling fuel oil might not be so bad, but spilling Crude Oil at these rates of tanker discharge could be catastrophic.

"The consumption of potable underground water in such an operation can amount to eighty or a hundred million gallons a year. While this may not be of immediate concern to the residents in the area, such operations with available disposable napthas lead to the building of petrochemical plants which use napthas as feed stocks. Such plants as plastics, and urea or fertilizer, which in turn require large amounts of water, and in turn produce their own pollutants.

"The question of how the tank farms are drained of rain water, the method by which residues are separated from water drained from the area, and how adequate these methods are in preventing the discharge of noxious effluent into the river are most vital in being dealt with to insure minimum pollution. Unfortunately, the devices for such an assurance cost money. No one will install them unless he is forced to. He should be forced to make the installation in the original construction, and no permit for operation should be granted until outside engineering concurs that the devices meet the standards of the American Petroleum Institute. Such devices include Skimmer Ponds, Aeration Devices, Air Cooling Towers, and Desulphurizers.

"FORESEEABLE EXPANSION POSSIBILITIES. There was the implication in the public meeting held by the Potomac River Fishing Commission that the plant at Piney Point was being changed from a terminal to a topping plant to enable some supplier to place himself in a position to advantageously supply the energy fuel needs of the prospective electric plant near the Potomac River Bridge. These needs might range up to 20,000 Bbls. of fuel oil a day. Many inferences might be drawn from such an implication. The topping plant may require up to 20/25 millions of KWhrs. of electricity for its operation each year. The power plant might require fuel tankage costing a million or so dollars. A pipeline between the two plants might be an ideal solution, and the distance between the plants does not seem to be great enough to discourage such a plan. A pipeline would be a benefit as to supplying by pipeline rather than by river barge.

"The availability of low cost naptha as a feed stock would attract petrochemical plants, which in turn would require considerable electric power, and cooling water from local sources.

"The above implications of increasing availability of electric power, fuels, and cooling or processing water coupled with the cooling water and transportation facilities offered by the Potomac will influence the industrialization of the shores of the Potomac as surely as the same factors influenced the industrial development of the Hudson River, Delaware River, Detroit River, and other rivers of the United States that are now so polluted and contaminated as to be eyesores no longer habitable for natural or marine life. It is not too late for the inhabitants, and local governments, of the Chesapeake basin and its tributaries to require the new industries incorporate these non-contaminant safeguards in their building plans: To ascertain that they have been included before operating permits are granted; and finally, most important, to readily serve injunctions against plant operation in the event of failure, seeing that those, whose incomes have suffered, or those whose property has been damaged, can obtain recompense without chasing the elusive culprit halfway around the world."

MR. THORNE: One last comment. I applaud the suggestion made by Governor Tawes that an interstate compact of some sort might well be considered to help solve at least some of the pollution problems. Thank you very much.

MR. JENSEN: Any questions?

MR. SILBERMANN: Are you suggesting that there be no additional shipping of any oil or crude oil into the Chesapeake Bay?

MR. THORNE: No, sir, I underlined "crude". The Bay must be used for transportation of oil, but if crude oil is refined. it should be done someplace near the ocean and not in Chesapeake Bay, which if we had a heavy spill, would simply be almost impossible to clear up. It would take years to clear out.

MR. SILBERMANN: You essentially object to the refining of crude oil in the Chesapeake, not to transportation through the Chesapeake Bay of crude oil?

MR. THORNE: I would say transportation because --

MR. SILBERMANN: It might not be refined in the Chesapeake Bay area, might be transported to refineries further inland or something else?

MR. THORNE: If it comes in in tankers, certainly the handling of crude oil from, let's say ocean-going transport to a pipeline or tankers or trucks or anything of that sort, there is a very dangerous situation, a great deal of danger that a spill might occur.

Also if tankers conveying crude oil in the Chesapeake broke up, which is a possibility, the danger is there whether the oil is to be refined inland someplace or not.

MR. SILBERMANN: Would you consider it a hazard if it was Bunker C No. 5 or 6 fuel oil which is refined oil or kerosene? This would be satisfactory?

MR. THORNE: Bunker fuel oil, gasoline is not the serious problem that crude oil is.

MR. PATE: Mr. Thorne, you made the statement that oil spills cannot be cleaned up. You said authorities agreed on this. What authorities agreed on this?

MR. THORNE: I would refer you to the President's report which was given to the President in, I think, February 1968 in which they say that oil spills cannot be cleaned up.

MR. PATE: It seems this is a relative term. Are you familiar with the present state of the area where the Torrey Canyon disaster occurred?

MR. THORNE: I have been past there quite a number of times, yes.

MR. PATE: What is the present state of that area?

MR. THORNE: I really couldn't tell you. I haven't been by there since the spill occurred, but I read a lot about it in the papers, and if you will refer to the report which the President requested, they give a pretty large amount of space to the Torrey Canyon spill.

MR. PATE: All right, sir.

MR. JENSEN: Is Mr. Malcolm in the audience? The following speaker after Mr. Malcolm will be Mr. Ralph Wiley of Tred Avon Yacht Club.

STATEMENT OF MR. JESS W. MALCOLM, EXECUTIVE DIRECTOR, THE CHESAPEAKE BAY FOUNDATION, INC.:

MR. MALCOLM: Mr. Chairman, distinguished members of the Panel, ladies and gentlemen, I am Jess W. Malcolm, Executive Director for Chesapeake Bay Foundation, and I have been asked before I give my statement to give for the record a copy of a letter from Mr. David Sayre, Chairman of the St. Mary's County Watermans Association, which I will do now. I have also been asked to give to this Panel a cigar box containing three or four samples of sand taken from the Piney Point Creek side of Piney Point Beach, and this is evidently submitted by the Potomac River Association of Leonardtown, Maryland. I will deliver those documents.

It is indeed a pleasure to have an opportunity to present a brief statement at this, the first of two public meetings to be held on the water quality of the Susquehanna River Estuary. My use of the word pleasure is not intended to convey a sense of joy over the necessity to discuss the growing pollutional threat to this nationally important water body, but rather that the problem is receiving public attention at a time when a solution still appears feasible and economically attainable.

I believe it is significant to recognize that today's meeting is being held under the aegis of the National Estuarine Pollution Study and is not, nor should it be construed, as a inditement against any single state of instrumentality of government. For use of the term "estuarine" considerably broadens the scope of the meeting to include the vast hydrologic unit which extends well beyond the Bay States boundaries and within which Chesapeake Bay is but a comparatively small, but highly significant part.

I refer here, of course, to the fact that the Chesapeake is subject to the influence of the Atlantic Ocean at one end and receives the land drainage of vast are encompassing the States of Delaware, Maryland, Virginia, West Virginia, Pennsylvania and New York at the other. As I will show later in my statement, the contributions of this tremendous drainage area can have a pronounced effect on the quality of the estuarine waters.

I shall not take time today to elucidate upon the long impressive list of statistics which sets the Chesapeake Bay apart as one of the most valuable and productive estuarine areas in the world. Nor will I attempt at this time to repeat the role this great water body has played in the growth and development of the nation. Both of these topics have been discussed very eloquently by others many times in the past. Instead I should like to limit my comments to a single topic, and that is the need for a comprehensive plan for the entire Chesapeake Bay System. While not altogether new, this is, in my opinion, of immediate concern and is essential to the long-range management and ecological health of Chesapeake Bay.

I should like to lead into the reason for my contention by first considering the question of eutrophication which is sufficient reason in itself for the need for a comprehensive management plan.

Eutrophication is a term that is used to describe the enrichment of waters. When properly guided and directed, enrichment can be a very valuable tool in estuarine management for it is directly related to production and most of us will agree that high yields are a desirable end product of any management endeavor. However, once waters have become over-fertilized, or over-productive if you will, not only is its balanced production capability affected, but other undesirable characteristics such as turbid waters caused by dense algal blooms, weed growth, sharp variations in diurnal levels of dissolved oxygen and the elimination of many desirable fish forms are predictable end products.

In short, over-enrichment is precisely what happens when waters cease to be clear blue and take on a variety of colors ranging from various shades of green, through dirty brown and at other times, a reddish hue. The coloration and clarity difference between the upper and the lower portion of Chesapeake Bay -- or rather, central portion of the Chesapeake Bay was pointed out in yesterday's aerial inspection flight of the Bay.

The greatest source of the fertilizer responsible for the eutrophication of natural water is human waste, whether or not it has been treated. Thus millions of pounds of nitrogen and phosphorus are discharged into the Chesapeake each year, not only from population centers surrounding the Bay, but as background loads and annual "slug" loads in the form of organic detritus washed in from the tributary rivers and streams. I know of no published data on the nutrient and biodegradable organic load discharged from any of the major rivers of the Chesapeake Bay, but a reasonable estimate might be obtained from data developed in the Delaware River which has a flow of about one-third that of the Susquehanna and is also less densely populated and industrialized. This comparatively small river discharges no less than 75,000 pounds of first stage UOD into the tidal segment every day during the summer months.

No estimate has yet been made of the "slug" load of organic detritus discharged principally during the winter months, but by early spring it has usually accumulated in sufficient quantity in the estuary to cause a serious dissolved oxygen sag for a distance of about 20 miles downstream. The chronic spring D.O. sags in the upper end of the Delaware estuary are severe enough at times to cause massive fish kills, generally in late May and early June, even before the more typical D.O. sag pattern develops in the more classically polluted segment at Philadelphia. Following the initial spring D.O. sag, that is attributable primarily to materials brought into the estuary from the Delaware River, the D.O. levels recover sufficiently to sustain a fair quality fish population.

I cite the Delaware example for two reasons: To show that not all of the estuarine water quality problems are locally induced and secondly, and perhaps more importantly, to point out the further need to consider the quality of incoming waters in estuarine management. But I should like to add to this, that in terms of the normally used water quality parameters, Delaware River water is generally regarded to be of excellent quality, just as I am certain Susquehanna River water is regarded as of good quality for domestic consumption; but at the same time, my contention is that due to its special physical characteristics, the Susquehanna River estuary, Chesapeake Bay, could suffer serious adverse effects solely on the basis of the quality of its incoming waters.

This example further demonstrates the need to begin now to reconsider our water quality management practices in order that the nutrient materials thus produced can be channelled into beneficial uses within the estuarine system, or that they be removed from sewage during the treatment process. This holds true not only for the sewage treatment plans for Maryland and Virginia, but also the plans of the upstream States, as well. It may be necessary to offer some substantial economic inducements to these areas to offset the added costs of those measures designed more or less specifically to benefit the estuarine environment.

Similar problems exist with respect to virtually all of the streams, large and small, which surround Chesapeake Bay. People are congregating along and around these areas in ever-increasing numbers. To solve them, we are forced to attack the problems one by one as separate and apparently unrelated entities. But, as history in the Delaware has shown, they are related, for the ultimate objective is to carefully gauge the total poundage the system can accommodate and develop a single long-range plan to accomplish the desired water quality management objective.

Another problem that should be considered in the development of a comprehensive plan for the Bay is the placement of industries. Questions involving issues such as the location of electric generating stations, oil important estuarine forms of aquatic animals depend at some stage in its life cycle upon environmental conditions found in different parts of the Bay, the further necessity for the development of a single Chesapeake Bay management plan becomes even more apparent. For example, many of the fish species which are important to the Maryland economy depend on the waters of Virginia during certain stages of their life cycles, and the opposite is true of some species that are important to the economy of Virginia.

I am not in a position today to spell out what might prove to be an ideal way in which to organize a comprehensive water resource management unit. Certainly it should involve top level representatives in the States of Maryland and Virginia, probably additional representatives from the local governmental bodies in the Bay States, and also some means by which real and meaningful communications can be established with the inland States, whose water use and management practices can and will continue to have an ever-increasing effect upon the quality and ecological health of the total estuarine system.

The State of Maryland has made vast strides in its water resource management program and should be congratulated both for its plans to provide financial aid for the construction of sewage treatment plants and its requirement that the various counties develop long-range plans for waste disposal. However, unless this is accompanied by an over-all State plan within which the individual county plans are incorporated and optimized, it will fall short of being an ideal arrangement. Likewise, if Maryland fails to take into consideration the programs planned and developed by Virginia to the south and Pennsylvania to the north, their program may fall short, no matter how well received or capably administered.

In summary I wish to stress that no matter how else we look at it, the Chesapeake Bay is an ecological unit. If it is to be maintained in a condition of high quality for the health, use, and enjoyment of future generations, it must be managed with the precepts of the biological consequences of every action in mind and all proposed uses put to the acid test of what effect will it have upon the Bay? If the answer suggests even a small degree of degradation per unit or installation, then that plan must be discarded and a new plan adopted, for over time it is the steady and irreversible erosion of quality which marks the demise of great resources like this -- for it generally does not happen overnight.

Needless to add, of course, for the immediate future is the necessity now to begin attacking all those areas in which the quality of the waters are degraded. As in the past, the road ahead will not be an easy one for it may necessitate an entirely new look at government and interstate cooperation on a scale now considered to be remote and even infeasible. It will require that the Federal government work in partnership with the States, and that the States in turn work in partnership with the smaller governmental units. It will require also that society be re-educated as to the role water, particularly estuarine waters, play in the economic health of the nation. It is for that reason that I was particularly delighted to learn of today's meeting, and was anxious to participate in it, because I believe it marks a milestone in the management of the region's estuarine areas. Thank you.

MR. JENSEN: Thank you, Mr. Malcolm. Any questions or comments from the Panel?

MR. PATE: Mr. Malcolm, at the outset you remarked something about a letter and sample of sand. Does that pertain to the regional plan for the Bay?

MR. MALCOLM: No, sir, it was given to me by a member of the audience. I merely presented it.

MR. PATE: For what purpose was that? How is it relevant? What does it pertain to?

MR. MALCOLM: The letter was submitted for the record, as I believe the sample was.

MR. PATE: On what subject?

MR. MALCOLM: The letter from Mr. David Sayre --

MR. PATE: Addressed to whom?

MR. MALCOLM: To the Federal Pollution Control, and begins, Dear Sirs.

MR. PATE: Okay. Who is Mr. Sayre?

MR. MALCOLM: Mr. Sayre is Chairman of the St. Mary's County Watermen's Association.

MR. PATE: What is the subject matter of the letter?

MR. MALCOLM: "The St. Mary's County Watermans Association is very much concerned about pollution and damage to the seafood industry --" shall I go on?

MR. PATE: Yes, I think you should.

MR. MALCOLM: "We know that raw sewage, oil, and silt can be very harmful and destroy marine life.

"In the past months there was a continuous fight against a proposed oil refinery in the lower Potomac River. It was felt to be incompatible to the area and the seafood industry. Another grave problem exists in the St. George Creek, Piney Point, Maryland.

"The Harry Lundeberg School of Seamanship is located on the St. George Creek at Piney Point. They have been doing a lot of dredging in this area, and we fear that the silt from the overflow will cover and destroy our many valuable oyster bars in these waters. At present, there is an eight inch dredge pipe line running from the school, across St. George Creek to a disposal area. Much silt is flowing from this particular area, and if this continues, it will, we believe, destroy our oyster bars in the entire upper creek.

"Recently, application has been made, by the school, to dredge and bulkhead portions of School House Branch, Locust Grove Cove and Oakland Cove in St. George Creek. The Department of Chesapeake Bay Affairs has checked these areas of application and have found oysters in or near all these areas. We believe that if these applications are approved, we will be deprived of these natural oystering areas. We also believe that dredging these places will tend to silt the many surrounding oyster bars.

"A check should also be made in the vicinity of the Harry Lundeberg School for sewage and oil problems. The St. George Creek is a very productive waterway and we feel that these problems should be dealt with immediately because many hundreds of watermen depend on these waters for a living."

MR. PATE: The sand pertains to this instance, too? Is that the purpose of submitting it?

MR. MALCOLM: I will read the entire note that is contained in the box of sand.

"A sample of sand taken from the Piney Point

Creek side at Piney Point Beach, the Steuart pipeline crosses over Piney Point Creek connecting the tank farm located on Piney Point Creek with the pier head on the Potomac River. Evidence submitted, Potomac River Association, Box 56, Leonardtown, Maryland, 20650."

The sample is a rocklike substance which appears to be adhered by some material, black material.

MR. JENSEN: Any other comments or questions?

MR. McKEE: We have four positive cards that wish to make statements. The rest of the cards show the possibilities. The four are Mr. Wiley, Mr. Jeffers, Mr. Marquiss and Mr. Rody. Would all of you wish to make a public statement, or would you be satisfied to file a written statement for the record?

Mr. Jeffers, I see you. What is your reaction to this?

MR. JEFFERS: How is the time working out?

MR. McKEE: We are almost at 5 o'clock. I would be glad to run to about 5:30.

MR. JEFFERS: I have a five-minute statement.

MR. McKEE: We will start with you.

DR. CRONIN: Before Mr. Jeffers spoke, I indicated I would like to make a statement. I have a listing of research needs that seem to be particularly pertinent to the estuary. No objection to filing it as a statement except I would welcome the opportunity for some narration with the Panel if there is time. You play it at your discretion.

MR. McKEE: It will be quite acceptable as far as I am concerned.

STATEMENT OF MR. F. J. JEFFERS, ON BEHALF OF THE BALTIMORE GAS & ELECTRIC COMPANY:

MR. JEFFERS: Mr. Chairman, members of the Panel, ladies and gentlemen, my name is F. J. Jeffers. I represent the Baltimore Gas & Electric Company. As a user of water from the Chesapeake estuary, we welcome this opportunity to express our views on estuarine problems and management.

As you may appreciate, this body of water is vitally important to the operation of our company. We now have five electric generating plants situated on the estuary. These have a total capacity of more than 1,800 megawatts. A sixth plant is expected to be under construction soon. A 1,600 megawatt nuclear plant to be built at Calvert Cliffs.

Our present plants withdraw and return to the estuary on the order of 1,400 cubic feet of water per second for condenser cooling. This use will increase to about 9,500 cubic feet per second with completion of the Calvert Cliffs plant during the 1973-74 period. In order to continue to meet the increasing demand for electric created by population growth, air-conditioning, electric heating, other new or expanded commercial and residential uses, plans are being promulgated for construction of large additional power plants. These new plants will have a correspondingly large need for cooling water.

The growth in electric power demand being experienced in the area served by the Baltimore Gas & Electric Company is quite representative of the growth being experienced by other companies across the country. Electric energy usage is continuing to double about every ten years. Estuaries are expected to become of increasing importance in the siting of future power plants because of the abundance of water available for meeting cooling needs. Realization of this fact has caused some biologists and others to become alarmed over the effect a large increase in cooling water usage may have on aquatic life. Evaluation of this effect is a major objective of the water studies being sponsored by the Baltimore Gas & Electric Company at the Calvert Cliffs site. It is expected that these studies will provide much useful information on measures for minimizing adverse effect on aquatic environment during handling of large cooling water flows.

The heat contained in cooling water discharges could well prove to be a viable resource if properly used relative to needs of aquatic life. It is to be hoped that the report of the Natural Estaurine Pollution Study will include recommendations for a coordinated research program on the effects of heat applied to the marine environment with special emphasis on the development of practical means for beneficial utilization of heated discharges.

In conclusion, if the utility industry is to provide the facilities needed for meeting the tremendous growth in electric consumption anticipated for the future, it is essential that estuarine management programs assign cooling water use an appropriate priority among the various estuary water uses.

MR. JENSEN: Thank you, Mr. Jeffers. Any questions from the Panel? We appreciate your waiting so long.

Is Mr. Ralph Marquiss here?

STATEMENT OF MR. RALPH MARQUISS, ON BEHALF OF CHARLES CENTER INNER HARBOR MANAGEMENT, INC.:

MR. MARQUISS: This has been a very instructional afternoon and morning in more ways than one. The next hearing I attend, I will submit two cards, one with the name Aardvark, and the other, Zismanski.

My name is Ralph F. Marquiss, representing Charles Center Inner Harbor Management, Inc., and I am instructed to make the following statement in the form of a report to Mr. Jensen.

"Dear Mr. Jensen: We have been informed by Mr. Larry Reich, Director of Planning for the City of Baltimore, that your agency is interested in area-wide planning of the Chesapeake Bay and its tributaries, among other estuarine areas in the Eastern Coastal region.

"It may be pertinent to your studies to know that the City of Baltimore is engaged in an extensive, long-range program to redevelop the downtown area in the vicinity of Baltimore's Inner Harbor. The first formal step in that program, a 10-year urban renewal project designated as Inner Harbor Project I, was formally adopted by the Mayor and City Council in June of 1967, and approved in January of this year by the Federal Department of Housing and Urban Development. This office represents the City of Baltimore in managing the planning and execution of Inner Harbor Project I. A second project, to be known as Inner Harbor II, is expected to enter the detailed planning phase on or about January 1, 1969.

"You will find enclosed a fact sheet describing the details of Inner Harbor Project I, together with a copy of the Urban Renewal Plan for the Project and maps showing the relationship of the Project to the surrounding area. Basically, Project I will transform an 85-acre area of deteriorated and obsolete land uses surrounding a portion of the Basin of the Northwest Branch of the Patapsco River, into a planned development of substantial new public and private uses. Under the Plan, public promenades and parks will dominate the water's edge, and the Inner Harbor area will become a recreational resource for the Baltimore community.

"During the development of the Urban Renewal Plan, the City's consultants investigated the engineering aspects of the project proposals, and confirmed the feasibility of carrying out the proposed Project. However, it has been established that the present quality of water within the Inner Harbor is below desirable standards, and should be improved concurrently with the development of Project I. Furthermore, it is clear that the question of water quality in the Inner Harbor is inseparable from that of water quality in the Jones Falls and the outer portions of Baltimore Harbor. With this in mind, we are pursuing detailed studies to identify the sources of pollution and the relative magnitude of each contributing factor. When this information is in hand, we will assist the Baltimore City Department of Public Works in identifying the practicable methods of improving the level of water quality.

"Therefore, I would like to offer our assistance and support to your agency in the undertaking of the impending study. I hope that we may obtain from your investigations the type of information which will facilitate the execution of the Inner Harbor redevelopment program. Please let me know if we may provide any additional information." Signed, Martin Millspaugh, General Manager, Inner Harbor Project I.

A brief amplification may be in order.

The interest of the Inner Harbor Management in harbor water quality has two sequential phases.

The first phase deals with definition of the problem - what are the pollutants? What are their varying or cyclic concentrations? What are their sources? And finally, what is the composite water quality in the Inner Harbor?

In order to minimize duplication of effort, and to take advantage of the ongoing activities of various agencies and political subdivisions, liaison has been established with the Chesapeake Field Station of the Federal Water Pollution Control Administration, the Maryland Department of Water Resources, and the City of Baltimore Division of Wastewater. I will not undertake to discuss the programs of these agencies, indeed, subsequent speakers may develop these in detail.

Concurrent with these activities, the Chesapeake Bay Institute of the Johns Hopkins University is conducting an investigation of the mechanics of water exchange between the inner and outer harbor. The end product will be a mathematical model to derive, for given input pollutant concentrations, the impact upon the water quality of the inner harbor -- and perhaps of equal import, to establish ceilings on pollution levels to correspond to a desired or mandatory level of water quality in the Inner Harbor.

A possible second phase of the work may entail investigation of how the desired or mandatory level of water quality might be attained -- again an opportunity for broad cooperation with the many agencies interested in the Chesapeake Bay and its estuaries.

MR. McKEE: We appreciate your views on this. I guess we really didn't know how to arrange our speakers since we didn't know until this morning just how many people were going to present statements. There was no simple way.

MR. MARQUISS: I was being facetious.

MR. JENSEN: Does the Panel have any questions?

MR. MARQUISS: Thank you, gentlemen.

MR. JENSEN: Dr. Cronin, you said you had some remarks you hoped the Panel would react to. I am not certain what kind of remarks it would take to get the Panel to react, but you may try. Any other members of the audience who wish to make a statement?

STATEMENT OF MR. JESSE NALLE, DIRECTOR OF PLANNING FOR THE CITY OF ANNAPOLIS:

MR. NALLE: I am Jesse Nalle, Director of Planning for the City of Annapolis. I appreciate your indulgence for this brief statement.

The very existence of Annapolis rests upon its location upon the shores of Chesapeake Bay. As an early capital of our nation, as capital of Maryland, County Seat of Anne Arundel County, site of the United States Naval Academy, yachting capital of the East Coast, seafood center, a truly unique residential community, Annapolis depended upon the Bay in the past, depends upon the Bay now, and will grow and prosper in the future only if the Bay is preserved and improved.

The City of Annapolis is deeply aware of this problem. Our maritime zoning is being reviewed so that compatible land use is present on our waterfront as well as establishing reasonable relations. The City Council has called for a soil erosion and siltation control program implemented by a grading ordinance. City Plannnng offers hopes to prepare in 1969 a waterfront development plan. Annapolis is indeed aware of its dependency on the Bay.

But we in the City are but a small part of the shoreline. We will do our part, but we hope that a workable and politically viable program will match the technical recommendations that will be forthcoming. Indeed, it seems to us that the greatest challenge lies in the devising of new political techniques and new political leadership to carry out that which we all agree must be done. Thank you very much. (Applause.)

MR. JENSEN: Do members of the Panel have questions?

MR. COULTER: Would you care to comment on the probability and chances of a combined City-County sewage treatment plant at the secondary level in the near future?

MR. NALLE: Very good. (Applause.)

MR. JENSEN: Was there someone else in the audience that wishes to say something?

STATEMENT OF MR. WILLIAM A. HASFURTHER, CHIEF OF THE DIVISION OF WASTE WATER, CITY OF BALTIMORE:

MR. HASFURTHER: My name is William H. Hasfurther, Chief of the Division of Waste Water, City of Baltimore.

Gentlemen, I sat here all day somewhat questioning the sincerity of the hearing because I thought all along the City of Baltimore had not been notified. I learned of the meeting by reading in the paper last night, but now I find our planning agency had been notified and had not seen fit to notify the people who are actually dealing with the waste waters. I think this points out the difficulties of bureaucracy. We don't get information in the places where it should be.

That is why I feel it is very important that, being the biggest contributor to the Bay, that the City of Baltimore should be represented.

I won't make any great comments. I will attempt to write something and get it to the hearing group. But I would like to make one comment on a statement that Congressman Morton made.

He said if the City of Baltimore really knows what is needed and has a plan, it can be carried out. I would like to correct that and say the City of Baltimore knows what is needed, and it is developing a plan and will carry it out. The City of Baltimore now has a six-year plan for expansion and improvement of its sewage facilities that will cost in excess of $90 million. Thank you.

MR. JENSEN: How much was the amount?

MR. HASFURTHER: Ninety million dollars.

MR. JENSEN: Thank you, sir. Are there

questions or comments from the Panel?

MR. COULTER: Is that entire $90 million grant eligible?

MR. HASFURTHER: We hope so.

MR. JENSEN: You will submit an additional statement for the record?

MR. HASFURTHER: Yes.

(Statement referred to by Mr. Hasfurther follows.)